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An Address.[1]

By F. L. GILL, M.B., F.R.C.S. (Edinburgh), F.R.A.C.S.,

Retiring President of the Western Australian Branch of the British Medical Association.

CUSTOM has decreed that each year your retiring President should deliver a short, preferably a very short, address at this annual meeting before vacating the chair.

In trying to think of a suitable subject I finally decided upon that hardy old annual *The Workers' Compensation Act*, first, because after four years' experience as a member of the Disputes Subcommittee I feel confident to speak on at least some aspects of the subject, and, secondly, because during the past years several matters have cropped up which should be of interest to you all.

[1] Read at the annual meeting of the Western Australian Branch of the British Medical Association on March 15, 1936.

In 1927, at the instigation of the Western Australian Branch of the British Medical Association, the first Joint Disputes Committee was established. It consisted of three members of the British Medical Association and three members of the Underwriters' Association. This was terminated by the Underwriters' Association in 1931, following on certain disputes which arose out of the amended Schedule Number 2. The British Medical Association section of this committee, however, has never ceased to function.

During last year our subcommittee met members of the Underwriters' Association on several occasions; and as an outcome of these meetings, at which many grounds of complaints by both parties were freely ventilated, it was decided to reestablish the Joint Disputes Subcommittee.

The first meeting was held on December 3 last and further meetings are being held monthly. At the first meeting much useful ground was covered. Your representatives pointed out to those of the

Underwriters' Association that it is our earnest wish to discipline those few of our members who continue to abuse the privileges enjoyed under the Act to the detriment of the vast majority of medical men who constantly render fair and honest accounts.

We further made it perfectly clear that we expect the Underwriters' Association similarly to discipline their members, some few of whom most certainly require it. We believe that the Underwriters' Association can and will enforce their rulings on their members.

The decision of the joint committee shall be final and shall be accepted by the disputants.

The Underwriters' Point of View.

All insurance companies appear to be agreed that there is an extremely small profit made out of workers' compensation work and that they carry these risks only in order to keep other classes of business. We have replied that their burden has been considerably eased by the British Medical Association Schedule Number 2, which represents a reduction of fees of about 10% all round on the old schedule, and that they did not pass on the reduction to the employer in the form of reduced premiums.

They complain that doctors are charging fees which would be above the ability of the average wage-earner to pay if he were not insured. But surely this is one of the essential reasons for the Act's existence.

They resurrected the old red herring of "no bad debts" as a plea for smaller charges. We replied that this was one of the main factors in consideration of which we produced Schedule Number 2.

They asked that in cases in which the schedule provided a maximum and a minimum fee, the minimum should be the charge and the maximum be removed from the schedule. To this we emphatically refused to agree; but we agreed to notify our members that in future when they are rendering an account in excess of the minimum charge, they should briefly explain to the insurance company their reasons for doing so.

Other Causes of Inflation of Out-Goings When the Doctor Does Not Benefit Financially.

Other causes of inflation of out-goings when the doctor does not benefit financially are as follow.

1. Keeping patients too long in hospital. One doctor wrote to a company: "This man need not remain in hospital, but before I decide the matter I will be glad to know if you are agreeable to make him an allowance for board and lodging; otherwise I will keep him in hospital."

Numerous cases were quoted in which a man was certified fit to resume work as a labourer the day after his discharge from hospital. In this connexion let me quote one case recently before the Disputes Committee.

The worker was employed on road construction and received a wound on the leg. He was in hospital for seventy-two days, was certified fit for work on the seventy-third day, and the doctor charged for seventy-three visits, including one per day up to the last day.

This, gentlemen, is the type of thing which the members of your committee will not stand for, and I am confident that we have the almost unanimous support of our members.

2. Doctors giving pharmacists a free hand regarding supplies of medicine. For example, a chemist charged for eight ounces of "A.P.C." mixture every second day for fourteen days. Obviously the hospital was stocking up its supplies at the expense of the insurance company. We would ask our members to see that properly signed prescriptions are given in all workers' compensation cases, as probably the insurance companies will refuse all pharmacist's accounts that are not supported by a prescription.

3. Unnecessary X ray examinations. A girl ran a needle into her finger, but insisted that the needle did not break, as she went on sewing with it, yet the doctor insisted on an X ray examination.

Your committee has to admit freely that the underwriters have many very just causes for complaint against some of our members.

Disputed Accounts.

In the Branch office is a file containing details of every disputed account since the inception of the Disputes Committee in 1927; these now number 1,053. A perusal of that file is extremely instructive. (i) It shows, at a glance almost, who are the offending members of the Branch. (ii) It shows just as clearly the offending insurance companies. (iii) It shows on closer analysis the types of cases which are responsible for most of the disputed accounts. Let me amplify these three points.

The Offending Doctor.

Of offending doctors there is an outstanding batch of perhaps ten whose defaulting record may be described as of the chronic type. Occasionally we can report a cure. Thus in the first year of the file one name appeared fourteen times, and most of the accounts of this man were reduced by the committee. During the past eight years his name appears only twice. Another name which at one time was so much in evidence that no insurance company in the State would pay any account bearing that name, has now almost disappeared from our list.

Offending Companies.

Just as we are unable to deny the presence of a few black sheep in our own flock, so must it be admitted that among the underwriters there are a few whose fleeces are somewhat dusky. A five minutes reading of our files shows who these offenders are, and I am glad to say that they are becoming recognized by the underwriters' representatives on the Disputes Committee, who, I believe, have a genuine intention of dealing with them.

The Type of Cases which Cause Dispute.

The chief causes of complaint on our side are such matters as the following:

(*a*) A company sends a cheque to the doctor for portion of his account only, accompanied by a flat refusal to pay any more. This very often occurs without any request for information as to the difficulties of the case.

(*b*) A threat comes from the company that unless the doctor agrees to reduce his account by a stated sum, the company will pay the amount directly to the injured worker, which legally they are entitled to do.

(*c*) The insurance company fails to notify the doctor in charge of the case of its intention to obtain a second opinion, and it fails also to forward a copy of the consultant's opinion, as required by Condition C of the Amended Schedule Number 2. In this connexion, by the way, many of our members are guilty of discourtesy towards a brother practitioner when they fail to forward a copy of their report to the doctor in charge of the case.

(*d*) In the event of a patient being transferred from one doctor and hospital to another doctor and hospital, say from country to town, we consider that it is reasonable that the insurance company should provide an approximate statement of medical expenses payable at the time of transfer.

(*e*) Frequently a doctor in all good faith treats a patient as a workers' compensation case, furnishes certificates from time to time to the insurance company, and finally, at the end of a long illness, is calmly told that the worker's claim has not been accepted.

From the insurance companies' point of view there are causes of complaint which your committee recognizes not only as perfectly reasonable, but as being the underlying causes in 90% of disputed accounts.

To my mind, and Dr. Moss and Dr. Aberdeen agree with me, the worst offence of the doctor is that of over-visiting. This applies most especially to patients in hospital.

Clause 10 of the schedule reads:

> Charges for visits or consultations at surgery: 10s. 6d. for first two, 7s. 6d. for next two, 5s. for each subsequent visit.
>
> When patient is in hospital: First week not to exceed £2 10s.; subsequent weeks not to exceed £1 15s.

Analyse this and you find that the first week of £2 10s. is made up of seven visits, two at 10s., two at 7s. 6d., three at 5s., while the other weeks of £1 15s. mean seven visits at 5s.

Now, gentlemen, I seriously put it to you: how many workers' compensation patients definitely require, or receive, seven visits per week during their whole stay in hospital, which may be six or seven weeks or occasionally more? Again let me quote the patient who was in hospital for seventy-two days, who resumed work on the seventy-third day, and for whom the company was charged for seventy-three visits.

Is it not a fact that what often happens is this: A doctor has, say, a dozen patients in one hospital, of which, say, seven are compensation cases. It is almost certain that at least one of that dozen requires daily attendance. While in the hospital, the doctor does a quick round of the whole dozen; with many it is a case of a quick "Good morning. Everything all right?" Then he goes home and books up a visit to each of the seven insurance cases, which is frankly dishonest.

Our interpretation of the section of Clause 10 which limits the charge for hospital patients to £2 10s. for the first week and £1 15s. for subsequent weeks is that in the rare cases in which for the first week or two visits in excess of seven per week are essential, we agree to charge only for seven. Surely it is a reasonable corollary that a patient who requires only two or three visits per week should be charged only for two or three visits.

It remains, however, an astounding fact that an amazing number of otherwise perfectly reputable medical men just cannot resist the temptation to charge the full schedule rates of £2 10s. and £1 15s. In future, we would ask you, when charging the full weekly rate, as in many cases you are justly entitled to do, to inform briefly the insurance company of your reasons for doing so. Otherwise it is the intention of the insurance companies to dispute all such accounts. And please do not answer our inquiries for further information on the case with a bland reply: "In my opinion the visits were necessary."

Another just cause for complaint by the underwriters is as follows. In many places the schedule provides for a maximum and minimum charge, for example, fractured humerus, ten to fifteen guineas. Many of our members invariably charge the maximum. In other words, their cases are always unusually difficult.

In many cases even the maximum may be a poor remuneration in view of the extreme difficulties of the case, but in such an event it is very easy to accompany your account with a very brief description of these difficulties.

Another cause of complaint can be illustrated by the following case: A worker develops a hernia while at work, visits the doctor, who diagnoses a hernia and charges 10s. 6d. Doctor and patient notify the insurance company and the employer, and two days later the patient again visits the doctor to arrange an operation and is charged 10s. 6d. On the next day operation is performed and a fee of £15 15s. is charged. The patient leaves hospital on the fourteenth day and visits the doctor one day over the month; a fee of 7s. 6d. is charged. The patient is told to report in one week and the charge is 7s. 6d. He is told to come up for final discharge next week and 5s. is charged. The total account is £17 16s.

All this is strictly according to the schedule, but the insurance company knows perfectly well that

the doctor is getting a very full sixteen ounces to the pound of flesh.

Nothing makes us quite so sick as the man whose accounts are invariably strictly correct according to the schedule, but always claiming the maximum. We know perfectly well that many such accounts represent a palpable overcharge, yet we cannot just put a finger on the spot.

We think that when a definite and reasonable fee is given in the schedule for an operation, including one month's after-treatment, it is unwise to charge for visits over the month, unless the circumstances are very exceptional, and in such rare cases it is wise to give your reasons briefly for so doing; also pre-operative visits should not be charged for.

Conclusion.

In conclusion, may I be permitted to tread ever so lightly and for a very few moments upon rather dangerous ground. As your President, and as the senior surgeon of the Perth Hospital, the latter purely through efflux of time, I claim the privilege to do so.

Many senior members of our profession view with concern an ever-increasing tendency among our members, as it were, to play a lone hand—to treat every patient who comes to the consulting rooms, irrespective of the fact that the member may not be conversant with the modern methods of treatment for the particular disease in question. Such treatment often includes the performance of very major operations by very junior practitioners.

Please let it be understood that my remarks are not especially directed against the general practitioner. It would be every bit as wrong for me to operate on a patient with a cerebral tumour as for my last year's house surgeon to do so.

I believe that the *Workers' Compensation Act* and the financial depression are largely responsible for the deplorable conditions which obtain today. From 1930 onwards all of us were faced with the reasonable certainty that our incomes were liable to a heavy reduction, and in order to minimize this loss we have ourselves treated patients whom formerly we would have passed on.

Senior surgeons have ceased to pass on small jobs to their juniors, have largely ceased to call in a physician to help them with complications of heart, lungs *et cetera*, have ceased to employ an assistant in many cases when formerly they did so, and frequently do work under a local or spinal anæsthetic which might sometimes be better done under general anæsthesia.

Junior surgeons have largely ceased to pass on their more serious cases to their seniors and have even ceased to ask their senior to "stand by" when doing serious cases, often very serious cases.

Physicians appear to be finding that many cases, formerly regarded as surgical or in the provinces of the orthopædists, or of the ear, nose and throat men, are worth trying with a fairly long course of medical treatment.

Surgeons, physicians and general practitioners are tending to dispense more and more with X rays and pathological investigations, and, last but not least, practically every general practitioner is now his own surgeon, physician, pædiatrician, gynæcologist, orthopædist, ophthalmologist, dermatologist and oto-rhino-laryngologist.

The changes in conditions which I have tried to outline are, I believe, responsible for the fact that we have among us an ever-increasing number of young men, holding the highest obtainable senior degrees, and having spent many years in honestly trying to equip themselves for some special branch of their profession, who now find themselves forced into general practice because they know that they cannot rely upon the support of the rest of us, to which they are justly entitled.

The years of depression are rapidly coming to an end and the time is ripe for each and all of us to try to return to the much happier conditions under which we formerly worked together, in the true team spirit, not as self-seeking hucksters, but as respected members of that great profession to which we have the honour to belong.

SOME OBSERVATIONS ON THE RELATION BETWEEN CLINICAL TYPES OF DIPHTHERIA AND CULTURAL TYPES OF CORYNEBACTERIUM DIPHTHERIÆ.

By PHYLLIS M. ANDERSON, N. E. GOLDSWORTHY and HUGH K. WARD.

From the Royal Alexandra Hospital for Children, Sydney, and the Department of Bacteriology, University of Sydney.

THE impression that there was an unusually large number of severe cases of diphtheria among patients admitted to the Royal Alexandra Hospital for Children during the autumn months of 1935 prompted an investigation into the cultural types of *Corynebacterium diphtheriæ* occurring in these cases. Anderson, Happold, McLeod and Thomson[1] in 1931 reported that they could distinguish three main types of *Corynebacterium diphtheriæ*—the *gravis* type, the intermediate type, and the *mitis* type. They also reported that the infections caused by the *gravis* and intermediate types were generally more severe than those caused by the *mitis* type. Subsequent investigations in Europe have confirmed this work, and in Germany particularly a high case-mortality has been associated with *gravis* and intermediate infections.

In Australia the *gravis* type of *Corynebacterium diphtheriæ* had not been reported up to that time, 1935, though subsequently Gregory[2] reported the occurrence of five *gravis* strains out of the forty strains that he investigated.

In the present study one of us observed the patients, and the other two authors isolated the organism and classified it according to the cultural characteristics laid down by Anderson *et alii*.

In all, 184 cases were studied between April, 1935, and March, 1936. A description is given of the methods which were used, and this includes: (i) the criteria on which the cases were classified clinically; and (ii) the criteria on which the organisms were classified culturally. The data thus collected are then set down, analysed and discussed.

Clinical Classification of Cases.

The cases fell into two broad clinical types: (i) that associated with the formation of false membrane on the surface of the affected area—the ordinary form; (ii) that associated in addition with necrosis of the affected surface beneath the membrane, and with widespread swelling of the tissues of the throat and neck—the malignant form.

The Ordinary Form.—Patients of the younger ages, from one to five years, were most numerous. The usual history was of being "off colour" for one to three days, of loss of appetite, huskiness, croupy cough becoming worse, leading to loss of voice, and difficult breathing. The small children rarely complained of sore throat.

On examination the children were flushed in the face, the temperature was 37·2° to 38·3° C. (99° to 101° F.), the pulse rate was 110 to 120 per minute, the respiration was noisy, and areas of yellowish membrane with clearly defined edges were present on the tonsils and occasionally on the uvula. The cervical glands were palpable and enlarged in a minority of cases. In the purely laryngeal cases the tonsils were clean.

After the administration of antitoxin the temperature gradually fell to normal in about four to five days, when the child looked and felt well.

In those cases in which the symptoms were mainly laryngeal there was recession of the sternum, and a varying degree of obstruction to breathing. Intubation and/or tracheotomy sometimes became necessary as the membrane separated. If fragments of the membrane were recovered, they were found to be smooth on both sides.

Some patients with laryngeal infection died from mechanical obstruction with cyanosis; others had extreme pallor and rapid pulse rate.

The Malignant Form.—The picture in the malignant form was entirely different. The children tended to be older, aged four to nine years. The first symptom noted was swelling of the neck, often thought to be due to mumps. The child had become ill rapidly, the breath was offensive, the throat sore, swallowing difficult and painful. On examination the child was pale, the expression apprehensive and the voice nasal. The normal contours of the neck were obscured by gross swelling. The regional glands were enlarged, but ill-defined because of the general swelling of the subcutaneous tissues, these features constituting the picture of "bull neck" or "collar neck". The tonsils were greatly enlarged, often meeting in the mid-line, and were entirely covered with thick brownish membrane, which might even extend on to the posterior pharyngeal wall. If the membrane was dislodged, the free surface was seen to be smooth, and the attached surface rough and blood-stained. There was brownish blood-stained nasal discharge, and the nose was blocked. The odour of the breath was fœtid, the temperature 38·3° to 39·4° C. (101° to 103° F.), the pulse 120 to 150 per minute.

The administration of antitoxin was not followed by any alteration in appearance, the child became rapidly worse, sometimes bleeding from the nose or throat, and many patients died within thirty-six hours of admission to hospital. Some appeared to improve, the swelling subsided, the nasal discharge decreased; but after five days or more there was sudden collapse, pallor, sweating, running pulse, dilatation of the right side of the heart and death within twelve hours.

Some patients went through a long convalescence, often with paresis of the ocular or palatal muscles, to ultimate recovery.

Sub-Malignant Form.—There was a smaller group of patients, who exhibited these symptoms in a lesser degree, the swelling of the neck sometimes being unilateral or the nasal discharge absent. These patients had a better prognosis, although fatal cases occurred here also.

Cultural Classification of the Organisms.

The following routine procedure was adopted for the bacteriological investigation of the cases: (1) A swab from the lesion was inoculated on to a tellurite medium for the purpose of securing a pure culture of *Corynebacterium diphtheriæ* and of typing it tentatively. (2) Fermentation tests on glucose and saccharose were carried out on the pure culture and the morphology on Löffler's medium was confirmed. At this point the pure culture was handed over to a second observer who studied (3) the colony form on a tellurite medium and, concurrently, (4) the fermentation reactions on (*a*) starch and (*b*) glycogen media. (5) Additional tests were used when the results of the previously enumerated ones were inconclusive.

1. The swab (pharyngeal or nasal, or both) was received from the hospital, bearing a distinguishing mark of no bacteriological or clinical significance, and was at once plated out on a tellurite medium. During the early part of this study we used the medium (slightly modified) described by Anderson and his co-workers,[1] but for the major part of it we used the medium recommended by Clauberg.[3] Clauberg's medium is in our opinion definitely superior to that of the English workers,[1] in so far as growth is much more rapid, so that the culture can be examined and read after twenty-four hours' incubation. This applies not only to plates inoculated with pure cultures, but also to those spread with the original swabs. For primary isolation it was found advantageous to double the concentration of the potassium tellurite, in order to inhibit cocci.

With the aid of a low power colony microscope (× 15) the plate cultures were examined for the presence of colonies broadly conforming to the descriptions given by Anderson *et alii* (*loco citato*) and from a single colony the two standard sugars and a Löffler slope were inoculated.

2. If the organism fermented glucose, did not ferment saccharose, and gave a typical morphology

from the Löffler slope, it was accepted as *Corynebacterium diphtheriæ*.

At this point those cultures, which according to the morphological and fermentative characters were true *Corynebacterium diphtheriæ*, were handed over to a second worker for confirmation of the tentative typing as determined from the primary plate culture of the swab. Clauberg plates and starch and glycogen media were inoculated, and readings made after twenty-four hours' and forty-eight hours' incubation.

3. On the plates well separated colonies were examined with the aid of a binocular dissecting microscope (× 15) and it was possible to assign at once the great majority of cultures to either the *gravis* or *mitis* type.

The colonial characters on Clauberg's medium were as follows:

After twenty-four hours' incubation of the *gravis* type isolated colonies measured approximately 1·5 millimetres in diameter. The edge was irregular with relatively deep indentations, the surface was matt, sometimes very rough. In section the top was more or less flat, the edges were fairly steeply bevelled. After a further twenty-four hours the appearances described were accentuated, and "daisy-head" colonies (Anderson *et alii*) were frequently well developed.

After twenty-four hours' incubation of the *mitis* type isolated colonies were somewhat smaller than those of the *gravis* type, although individual strains differed. The edge was quite regular. The surface was smooth and shiny, and for this reason the colonies looked blacker. In section they were domed. After a further twenty-four hours the colonies enlarged, became flatter and somewhat less shiny.

After twenty-four hours' incubation of the intermediate type the isolated colonies were small, approximately 0·5 millimetre in diameter; otherwise they resembled those of the *mitis* type. After a further twenty-four hours there occurred a distinct change towards the *gravis* form: the edge became slightly irregular (wavy), and the surface slightly matt, but "daisy-head" forms did not appear.

4. With regard to the starch fermentation test, the original paper of Anderson and his colleagues gives but scanty details of the technique used, although it would seem that a solid medium was chosen, similar to that described by Andrewes[4] in connexion with his work on the streptococci. Attempts to use a peptone water medium enriched with horse serum proved futile owing to the action of the serum on the starch. After testing several methods, we finally decided upon the following technique. The medium was prepared on a base of simple 1% peptone water, to which were added 0·1% soluble starch ("B.D.H." brand) and 1% Andrade's indicator. It was used in approximately five millilitre quantities contained in test tubes 1·25 centimetres (half an inch) in diameter. We observed that unless a large inoculum was used, the results might be unsatisfactory, in fact in some cases wholly wrong, since although good growth was eventually secured, the indicator did not show the presence of an acid reaction. In view of this our practice was to sow the starch-peptone water medium from a Löffler slope culture: the growth was scraped up with a platinum loop and a loopful of the mass transferred to the fermentation tube; this heavy inoculum was estimated to be not less than one cubic millimetre in bulk. The results had to be read after eighteen to twenty-four hours, since there was a strong tendency for the reaction to revert to alkalinity. Much the same procedure was adopted for the glycogen fermentation test, except that (*a*) one millilitre quantities were used instead of five millilitres, on account of the cost of glycogen, and (*b*) the fermentable substance was present in a concentration of 1%. Reversion to the alkaline state did not occur.

5. In a number of cultures there was some disagreement between the colonial characters and the results of the starch and glycogen fermentation tests. These cultures, which had been stored in cooked meat medium at 4° C., were later retested and their reactions were studied on the following media: (*a*) Clauberg plates; (*b*) horse blood agar plates; (*c*) nutrient broth; (*d*) Löffler's serum slopes; (*e*) starch peptone water; and (*f*) glycogen peptone water. As a result some of the discrepancies vanished. Where complete accord was not obtained between the various tests, the cultures were labelled "atypical" *gravis*, or "atypical" *mitis*, the designation *gravis* or *mitis* being determined upon the results of the starch and glycogen fermentation tests. The results of our investigations were first analysed on the basis of a classification of the cultures into four groups: (i) *gravis*, (ii) *mitis*, (iii) atypical *gravis*, (iv) atypical *mitis*. There were, however, so few of the atypical cultures that they did not appreciably affect the figures, and accordingly, for the sake of clarity, the atypical *gravis* strains have been grouped with the *gravis* strains, and the atypical *mitis* with the *mitis* strains. The final analysis was made on the basis of the two groups, *gravis* and *mitis*.

It should be noted that in our main series of cultures the "intermediate" type of *Corynebacterium diphtheriæ* was not met with. The differentiation of this type from the *mitis* type did not, however, present serious difficulties. On horse blood agar plates the colonies were very small. In broth the growth was finely granular, and settled on the bottom of the tube. Films from Löffler serum slope cultures showed long bacilli with very definite banding. When therefore the "intermediate" strains mentioned elsewhere were secured, we retested a large number of cultures, but were unable to classify any of them as "intermediate".

Through the courtesy of Dr. W. C. Sawers we were able to compare our cultures with strains of the *gravis*, "intermediate" and *mitis* types received from the Lister Institute.

Results.

Of the 184 cultures that were studied, 88 cases were "*mitis*" and 96 were "*gravis*" infections. In this series of cases, no "intermediate" infections were found.

We classified these 184 cases into three clinical types: ordinary, sub-malignant and malignant, in increasing order of severity. The details of this

clinical classification will be found above. Table I shows the distribution of these three clinical types in the *mitis* and *gravis* infections.

TABLE I.

Cultural Type of *Corynebacterium diphtheriæ*.	Total Cases.	Number of Cases in each Clinical Type.		
		Ordinary.	Sub-malignant.	Malignant.
Mitis	88	80=91·0%	4=4·5%	4=4·5%
Gravis	96	58=60·45%	11=11·45%	27=28·1%

From Table I it will be seen that the *gravis* type of infection showed a far higher percentage of sub-malignant and malignant cases than the *mitis* type of infection.

Among the 88 *mitis* infections there were seven deaths, giving a case mortality of 7·9%. Among the 96 *gravis* infections there were 25 deaths, giving a case mortality of 26%.

Table II shows the distribution of the deaths in the three clinical types with *mitis* and *gravis* infections.

TABLE II.

Clinical Type of Diphtheria.	*Mitis* Infections.			*Gravis* Infections.		
	Total Cases.	Deaths.	Mortality.	Total Cases.	Deaths.	Mortality.
			%			%
Ordinary	80	4	5·0	58	4	6·9
Sub-malignant	4	1	25·0	11	2	18·2
Malignant	4	2	50·0	27	19	70·4

As might have been expected, Table II indicates that the prognosis in each clinical type is independent of the type of infecting organism.

It might perhaps be thought that the development of the malignant form of diphtheria had some relation to the interval elapsing between the onset of the disease and the administration of antitoxin. We have divided the patients into two groups: (i) those admitted within three days of the onset of the disease; (ii) those admitted after three days from the time of onset. Table III shows the distribution of the three clinical types on this basis, and also gives the case mortality in each instance.

TABLE III.

Clinical Type of Diphtheria.	Admitted on Third Day or Earlier.		Admitted Later than Third Day.	
	Patients	Mortality.	Patients.	Mortality
		%		%
Ordinary	85	3·5	53	9·4
Sub-malignant ..	12	20·0	4	50·0
Malignant ..	21	66·0	7	85·0

Table III merely brings out the well known fact that specific treatment is more effective if given early in the disease. There was actually a lower percentage of malignant and sub-malignant diphtheria amongst those admitted after the third day of the disease. This suggests that the malignant type of diphtheria is a fulminating disease, which for that reason insures the earlier admission of the patient to hospital.

We also investigated four cases of malignant diphtheria in patients admitted to another hospital. One of these was a *gravis* infection, and three were due to the intermediate type of *Corynebacterium diphtheriæ*. All three patients with intermediate type of infection came from the same locality. In the light of this finding, we reexamined a large number of cultures from the main series, without, however, detecting any intermediate type of organisms amongst them.

Comment.

Admittedly 184 cases appears to be a small series from which to draw any definite conclusions, but our figures half-way through the investigation bore so close a resemblance to the final result that we did not think any useful purpose would be served by extending this particular series.

In considering the results, attention must be drawn to the fact that the material was selected to a certain extent, in that in this particular hospital a certain number of patients with mild infections are referred to another hospital, where there is more accommodation. This would affect the distribution of mild and severe cases among patients admitted to the hospital and studied by us, but there would of course be no conscious selection affecting the distribution of *mitis* and *gravis* infections.

This work indicates that the *gravis* type of *Corynebacterium diphtheriæ* is widely distributed in Sydney, and that, as in Europe, this type is apt to cause a more severe form of diphtheria than the *mitis* type. The *mitis* type undoubtedly can give rise to malignant diphtheria, but in this series of cases the *gravis* type caused nearly seven times as many malignant infections as the *mitis*. This fact, and the reports of malignant diphtheria coming from the country districts, suggest that the *gravis* type is prevalent throughout the State.

Malignant diphtheria is not new in Australia. It was described exactly as it appears today by Scholes[5] in 1920. Today we recognize that this

highly fatal form of the disease is generally associated with the *gravis* (or intermediate) form of the organism, and the probabilities are that malignant diphtheria always has been associated with this type, though we cannot be certain.

Like other workers, we have failed in our efforts to throw light on the pathogenesis of malignant diphtheria caused by the *gravis* type, and fall back on the obvious suggestion that sometimes, but by no means always, the *gravis* organism is able either to form more toxin or to form it more quickly, so that the patient absorbs a fatal dose before antitoxin is administered. In one case in this series 100,000 units of antitoxin were given intravenously and intramuscularly within twenty-four hours of the first symptoms of illness, and yet the patient succumbed. It is perhaps worth mentioning that malignant diphtheria occurred only once in this series in a child whose tonsils had been removed.

Ever since the days of Roux, it has been suggested that the simultaneous presence of the hæmolytic streptococcus was a factor of some significance. We looked for this organism in almost every case by plating the swab on horse blood agar, and for a time thought we had some suggestive evidence, but subsequent work did not confirm our early findings, and we do not believe that the hæmolytic streptococcus is an important factor.

That we have a form of diphtheria today, which, despite antitoxin, carries a death rate of over 50%, is a convincing argument for pressing forward with prophylactic immunization. Diphtheria can occur occasionally in a person who does not react to the Schick test, but we know of no case in which a subject not reacting to the Schick test has died of diphtheria.

Summary.

1. One hundred and eighty-four cases of diphtheria have been investigated and the relation of the clinical type of the disease to the cultural type of the organism has been studied.

2. Eighty-eight patients were infected with the *mitis* type of *Corynebacterium diphtheriæ*, and seven of these died, giving a case mortality of 7·9%.

3. Ninety-six patients were infected with the *gravis* type of *Corynebacterium diphtheriæ*, and twenty-five of these died, giving a case mortality of 26%.

4. Malignant and sub-malignant diphtheria were very much more frequent in the *gravis* type of infection, and accounted for the high case mortality.

We are indebted to the Director of Pathology and to the honorary medical officers of the Royal Alexandra Hospital for Children for their cooperation in this investigation.

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A REPORT ON THE GASTRIC ANALYSIS AND BACTERIOLOGY IN CASES OF RHEUMATOID ARTHRITIS, OSTEOARTHRITIS, SPONDYLITIS AND FIBROSITIS.

By LESLIE J. A. PARR and EVA A. SHIPTON,
Sydney.

OWING to the prevalence of and the great difficulties continually met with in the treatment of rheumatic conditions, it was thought that the following report might be of interest.

Every practitioner is aware of many cases of rheumatism in which complete relief or cure has followed tonsillectomy or removal of septic teeth.

The following examples have been selected from our own and a colleague's private practice.

CASE I.—Mrs. S., aged sixty-nine years, consulted a colleague on August 14, 1933, with a history of having suffered for one year from rheumatoid arthritis of the hands, feet, knees and back. On examination the patient was thin and had apparently lost a lot of weight. She was confined to bed for four months, after which she went to Moree bore baths, but no relief was obtained. Her loss of weight and malnutrition were evidence of the severity of the infection and almost militated against any operative procedure. Both tonsils were small and exuded pus on digital pressure. Incubation yielded a pure culture of *Streptococcus viridans* by the pathogen-selective method of Solis-Cohen. Over a year after the onset the patient was still no better and was in severe and constant pain. It was decided to remove the tonsils in spite of her bad general condition. This was done on August 24, 1934. The tonsils were small and fibrous and contained much pus.

Fourteen days later the patient had improved. Six months later she was gaining weight, looking well, and was very active.

On June 1, 1936, two years after the tonsillectomy, the patient was very well. There had been no recurrence of the pain or swelling, and she was walking actively and freely.

CASE II.—Miss E., aged twenty-three years, sought advice on June 4, 1927, having suffered from rheumatoid arthritis of the hands, knees, back and feet for two and a half years. She was pale, looked ill, and had lost a lot of weight. Previous to her illness she had been an active girl and a good tennis player. She had had pyelitis six years before and had suffered from sore throats from time to time.

On examination pus was present in the tonsils. On June 10, 1927, tonsillectomy was performed and *Streptococcus viridans* was obtained on culture.

Gradual recovery occurred during the next six months—not a rapid recovery as in the previous case. Ten months after operation the patient recommenced playing tennis, and twelve months after operation won a singles championship in a local tournament.

CASE III.—Mrs. D., aged thirty-seven years, short and well-built, very pale, shuffled into the surgery on two sticks. She had lost a lot of weight fairly rapidly. Four months previous to consultation she had tonsillitis and quinsy. After a few days' illness she got out of bed and felt fairly well. A few days later the right shoulder began to ache, after which the wrists, fingers and elbow joints became rapidly involved and swollen.

On examination the tonsils were found to be full of pus and a few dead teeth were present. X ray examination revealed areas of sepsis in two of them. On February 6, 1929, the tonsils were dissected out and two teeth were removed. On February 12, 1929, all the swelling had left the joints of the upper and lower limbs; there was still some stiffness, but the patient left hospital feeling much better.

On February 26, 1929, there was a slight recurrence of pain in the hips and ankle, probably due to too much exercise. She was quite well in two days. On June 7, 1936, the patient was very well. She has had no recurrence of symptoms.

CASE IV.—Master M., aged twelve years, was seen in 1928, with swellings in knees, ankles and the joints of the right hand of twelve months' duration. The child was pale, under-nourished and looked ill.

On examination the tonsils were still present, having been only partially removed. There was no evidence of infection of the teeth.

Cultures from the tonsils revealed *Streptococcus viridans*. Both were dissected out completely. The patient was given cod liver oil and bowel lavages during the next three months, at the end of which time the pain and swelling had completely disappeared.

In 1935 the patient was still well, played all games and had had no recurrence.

These cases illustrate the successful treatment of arthritis by the removal of sepsis, and the fact that no recurrence took place proves that the condition was due only to the sepsis in the tonsils and teeth, and that its removal was followed by complete recovery, slow in some, rapid in others.

Age was no barrier to recovery, as the young woman of twenty-three responded less rapidly than the older woman of sixty-nine. These types could be multiplied indefinitely.

On the other hand, there are few practitioners or specialists who could not point to a number of examples in which the rheumatic condition did not disappear on removal of sepsis. This type is more common than those in which removal of sepsis is followed by recovery.

In the following series, owing to lack of response to treatment, investigations were carried further and the stomach was examined to see whether any focus could be found there and, if so, whether its eradication would result in a cure or lessening of the symptoms, as had been observed with the removal of more accessible foci.

The stomach was given particular attention, because a large number of the patients in this series had been treated with streptococcal vaccines prepared from the bowel by the pathogen-selective method by other practitioners, and, although slight improvement may have been manifest at the time, frequently leading to their discharge from hospital as cured, all had relapsed and sought further advice.

A prolonged follow-up is essential to obtain any idea of the value of a line of treatment, as well as repeated estimations of the sedimentation rate.

Technique Followed.

For the gastric analysis the usual fractional test meal was employed. The patient fasted for at least twelve hours previous to the test. The Rehfuss tube was swallowed and the fasting specimen was withdrawn, after which the gruel was drunk and specimens were taken every half hour for two hours.

Histamine was not used to stimulate secretion of acid, as we believe that all degrees of reduced acid secretion are of equal value from the clinical point of view, a statement in agreement with Faber,[1] and also that the gruel meal is preferable to others.

Smears were made from the sediment of the fasting juice or from the muco-pus, which sometimes does not settle on standing. Leishman stain was used for the study of the cytology. The presence of organisms was noted in the immediate smears. Patients were instructed not to swallow saliva; but this is difficult to avoid in every case.

Cultures from the fasting juice were made according to the principles of the pathogen-selective method of Solis-Cohen,[2] modified according to Shearman.[3] Blood was collected and allowed to clot, approximately three to five cubic centimetres being placed in three tubes. About five cubic centimetres of gastric juice were diluted with an equal amount of sterile saline solution and cultures were made into the three tubes of clotted blood, varying amounts of the saline emulsion being put into each, the amounts varying slightly according to the amount of macroscopic pus present. Better results were obtained with the gastric contents diluted with saline solution than with undiluted juice. This may be due to the fact that when thick mucus is present the streptococci are so encased in it that growth is inhibited. After twenty-four hours' incubation of the cultures in the blood, subcultures were made onto glucose agar slopes, and in the great majority of cases streptococci were obtained in pure culture on one of the subcultures. Occasionally, owing to the presence of *Staphylococcus aureus* or *albus*, the streptococci had to be picked off onto blood serum media or the stomach contents again withdrawn and cultured.

Cultures were not regarded as sterile until three subcultures had been made at twenty-four hour intervals. On a few occasions diphtheroids grew on one or other of the tubes and streptococci on the others. The presence or absence of bile in the fasting contents of the stomach did not appear to affect the cultures.

In a number of the early cases cultures were made from the gastric juice onto blood agar plates as well, but the results were so inconstant and the streptococci so few and difficult to grow in subculture that this step was afterwards omitted.

Whether better results would have been obtained by culturing the specimens anaerobically we have not yet determined. The amount of available oxygen in culture made according to the method of Solis-Cohen may be less than in cultures on ordinary media, giving rise to a partially anaerobic medium.

In the great majority of cases blood from the patient under investigation was used as the culture medium, but in a few cases, in which the patient was crippled to such an extent that difficulty was met with in gaining access to veins, blood from another person was used. In one case of this series *Staphylococcus aureus* was found to come through the blood every time, as well as the streptococcus; and after several attempts to obtain a pure culture of streptococci, this was finally accomplished by using blood from another person as the

culture medium. It is worthy of notice that this patient was prone to staphylococcal infections and had recently had an attack of boils. Possibly the *Staphylococcus aureus* as well as the streptococcus was concerned in the gastritis.

The streptococci obtained from the stomachs of 51 patients were examined for hæmolysis with the following results: 35 were *Streptococcus viridans*, 11 were *Streptococcus non-hæmolyticus*, 1 was *Streptococcus hæmolyticus*. Four lots of streptococci died after being subcultured onto blood agar. Many failed to grow after the first subculture from the blood.

We wish to stress the fact that not once in all this series of cultures from the gastric juice did we obtain the freely growing, large, Gram-positive diplococcus, commonly called a streptococcus, which is so frequently found in cultures, made by the pathogen-selective method from the fæces, and used in the treatment of arthritic conditions. The streptococci from the stomach have very fine colonies when grown on blood agar. Those which we tried to grow anaerobically grew profusely when the colonies on blood agar plates were scanty and very fine. Also there is a pronounced tendency to die out on subculture, a characteristic we have never noticed with streptococci from the bowel and rarely in those obtained from the tonsils or teeth, subcultures from which may usually be kept alive for many months.

The predominance of *Streptococcus viridans* and *non-hæmolyticus* is in accordance with the findings of Pemberton[4] from other foci and may be additional evidence in favour of their playing some part in the production of arthritis.

In a series of foci other than the stomach examined by us during the seven years before the present series, 909 streptococci were examined for hæmolysis with the following results: 699 were *Streptococcus viridans* and *non-hæmolyticus*; 210 were *Streptococcus hæmolyticus*. Apparently the *Streptococcus viridans* and *non-hæmolyticus* predominate. The fact that these results were obtained over seven years would tend to eliminate any epidemic factor. The presence of eosinophile cells in the gastric contents was noted several times, a fact which may prove to have some significance, as Bloomfield and Polland note that increased round cell infiltration of the mucosa and the presence of eosinophile cells contributed to the microscopic changes which occur in gastritis.[5]

Epithelial cells and pus cells in varying numbers were always present and in a large number streptococci were found in the smears.

General Observations.

In the cases of rheumatoid arthritis of this series there were three main types of patient showing the following characteristics: (i) thin, with evidence of pronounced loss of weight and much wasting, sweating or clammy cyanotic hands; (ii) fat, dry-skinned, subthyreoid type; (iii) the mixture of types (i) and (ii).

These three types are found in the examination of most rheumatoid patients and occur in young and old, but the first type is largely confined to younger patients and the subthyreoid type to the older. As the number of cases seen increases, so it becomes difficult to classify all patients according to the type. Some, for instance, in this series were very thin but had a dry skin; others were fat and had a moist skin.

In the majority of the patients it was impossible to judge correctly the state of the stomach by the clinical signs and symptoms, but the condition of the tongue may be of diagnostic help. In some cases, with absence of free acid, a dry atrophic membrane covered the tongue, and at times the buccal mucosa and soft palate, rarely the pharyngeal mucosa. Reddish cracks extending from the angle of the mouth commonly indicated the absence of free hydrochloric acid from the stomach, but some patients with this feature and an atrophic membrane had a normal gastric acidity. Another type of tongue seen was thickly furred, coated almost to the tip, and moist. The breath had a bad odour, irrespective of the fact that no sepsis existed in throat or teeth. The patients with these signs often complained of a bad taste in the mouth in the morning.

The tongues of some patients were, however, entirely normal, and no idea of the state of the stomach could be obtained from their inspection.

Some of the patients with absence of free acid or hypoacidity complained of anorexia or loss of appetite, with nausea, flatulence and constipation. In one case of spondylitis with absence of free acid in a young man of twenty-three years, nausea was the predominating symptom. Some patients had attacks of vomiting, nausea and loss of appetite for two to three days, followed by weeks or months without symptoms. Many patients had no idea of any stomach derangement and ate vigorously, with no apparent symptoms.

Two patients had *acne rosacea*, which cleared with stomach lavage. Two cases of well-marked arthritis were improved by a bout of sea-sickness lasting four days, and the improvement persisted for weeks.

The complexions of these patients showed marked variation; some were fairly healthy, others had a pale, sallow, septic hue. The rapid improvement toward normal, under appropriate treatment, of the sallow, muddy complexion left no doubt in our minds that the colour was due to the sepsis in the gastric mucosa.

The majority of these patients had had their teeth and tonsils removed years before the stomach investigation, so that it was unlikely that continuous septic invasion could occur from the naso-pharynx or buccal cavity.

This series of patients comprises the following types of rheumatism: rheumatoid arthritis, osteo-arthritis, spondylitis, fibrositis.

The cases are tabulated in five groups, according to the degree of acidity of the gastric contents before and during the test meal, as follows:

1. Twenty-seven examples of complete absence of free acid.

2. Eleven examples in which the free acid excreted did not exceed twelve at any stage of the examination.

3. Thirty-three exhibiting slight to moderate hypoacidity.

4. Twelve with normal acidity.

5. Seven with hyperacidity at some stage of the examination.

The different forms of rheumatism in the different groups were as shown in Table I.

TABLE I.

Group.	Rheumatoid Arthritis.	Spondylitis.	Osteo-arthritis and Fibrositis.	Males.	Females.
I ..	19	2	6	4	23
II ..	7	3	1	6	5
III ..	25	2	6	8	25
IV ..	9	—	3	7	5
V ..	3	1	3	4	3
Totals ..	63	8	19	29	61

The ages of these patients, the duration of the disease and the presence of sepsis, both in the stomach and other foci, are given in the accompanying tables, II to VI.

TABLE II.

Group I. Complete Absence of Free Acid throughout the Digestive Cycle.

Number of Patient.	Age.	Duration of Disease before Consultation, in Years.	Different Foci Examined.		
			Teeth.	Tonsils.	Stomach.
1	54	1½	–	+	+
2	59	7	–	–	+
3	48	5	–	–	+
4	60	3	–	R	+
5	46	12	–	R	+
6	42	3	–	–	+
7	38	4	–	R	+
8	56	12	–	+	+
9	35	1	–	+	+
10	53	3	–	+	+
11	62	5	–	+	+
12	50	8	–	+	+
13	53	1	–	+	+
14	62	15	–	+	+
15	36	3	–	–	+
16	50	3	–	+	+
17	62	3	–	+	+
18	58	2	–	+	+
19	64	5	–	+	+
20	70	12	–	+	+
21	56	3	–	R	+
22	27	2	–	+	+
23	38	1	–	–	+
24	47	6	–	–	+
25	45	5	–	R	+
26	64	5	–	+	+
27	54	5	–	–	+

+ signifies streptococci present.
R signifies tonsils removed.
– signifies no infection present.

TABLE III.

Group II. Where Free Hydrochloric Acid did not exceed 12 at any stage of the Examination.

Number of Patient.	Age.	Duration of Disease before Consultation, in Years.	Different Foci Examined.		
			Teeth.	Tonsils.	Stomach.
1	39	5	–	+	+
2	54	1	–	+	+
3	38	6	–	+	+
4	21	2	–	R	+
5	34	7	–	+	+
6	65	3	–	+	+
7	34	9	–	+	+
8	54	9	–	R	+
9	41	1½	–	R	+
10	48	5	–	–	+
11	35	10	–	+	+

+ signifies streptococci present.
R signifies tonsils removed.
– signifies no infection present.

TABLE IV.

Group III. Exhibiting Slight to Moderate Hypoacidity.

Number of Patient.	Age.	Duration of Disease before Consultation, in Years.	Different Foci Examined.		
			Teeth	Tonsils.	Stomach.
1	56	2	–	–	+
2	58	5	–	+	+
3	59	2	–	+	+
4	24	8	–	+	+
5	38	2	–	R	+
6	54	2	–	+	+
7	60	7	–	–	+
8	42	5	–	+	+
9	60	6	–	R	+
10	49	2	–	–	+
11	44	3	–	+	+
12	53	1	–	R	+
13	32	0½	–	+	+
14	56	8	–	+	+
15	63	3	–	R	+
16	58	2	–	R	+
17	48	2	–	R	+
18	44	15	–	+	+
19	51	0½	–	+	+
20	31	0½	–	–	+
21	46	3	–	–	+
22	39	2	–	R	+
23	26	2	–	R	+
24	26	2	–	R	+
25	60	20	–	–	+
26	21	15	–	+	+
27	49	3	R	R	+
28	66	3	+	+	+
29	34	4	–	R	+
30	23	1½	–	+	+
31	32	1	–	+	+
32	45	4	–	+	+
33	45	7	–	+	+

+ signifies streptococci present.
R signifies tonsils removed.
– signifies no infection present.

TABLE V.

Group IV. With Normal Acidity.

Number of Patient.	Age.	Duration of Disease before Consultation, in Years.	Different Foci Examined.		
			Teeth.	Tonsils.	Stomach.
1	65	7	–	+	+
2	46	3	–	–	+
3	53	1½	+	+	–
4	50	4	–	–	–
5	64	8	–	–	+
6	58	3	–	+	–
7	72	10	–	+	+
8	49	5	–	–	+
9	47	2	–	+	–
10	57	5	–	–	+
11	58	1½	–	+	–
12	63	8	–	–	+

+ signifies streptococci present.
R signifies tonsils removed.
– signifies no infection present.

TABLE VI.

Group V. With Hyperacidity at some Stage of the Digestive Cycle.

Number of Patient.	Age.	Duration of Disease before Consultation, in Years.	Different Foci Examined.		
			Teeth.	Tonsils.	Stomach.
1	48	1	+	+	−
2	36	5	−	+	−
3	55	3	−	+	−
4	41	4	−	R	+
5	65	5	−	−	−
6	45	5	−	−	−
7	36	4	+	+	−

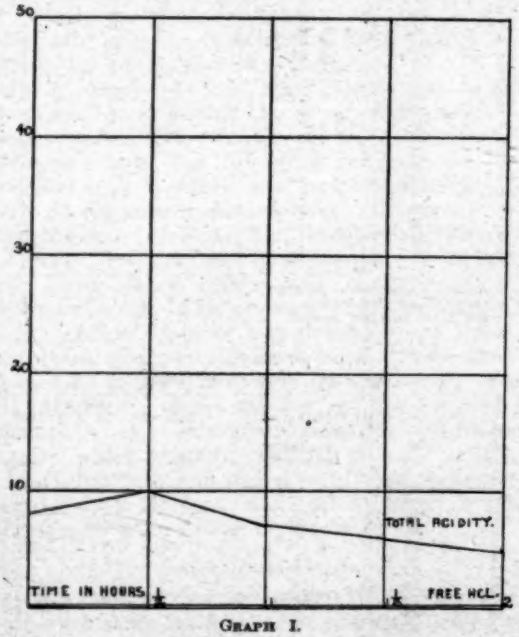
+ signifies streptococci present.
R signifies tonsils removed.
− signifies no infection present.

Many of the patients were edentulous or had had complete overhaul of the teeth before their consultation. This explains the absence of tooth infection. Similarly, many had had tonsils removed years previously.

An examination of the antra was not carried out unless indications were present. We refrained from culturing the fæces for streptococci, owing to the fact that we never obtained a negative result, not only in rheumatic diseases, but also in any type of case.

Upon what grounds can be based the evidence of infection of the gastric mucosa in these cases?

In the first group the diagnosis is easy, as there are: (i) Complete absence of free acid throughout the digestive cycle. (ii) Abundant mucus and muco-pus in the fasting juice. This characteristic varies with the degree of infection, as in some of the

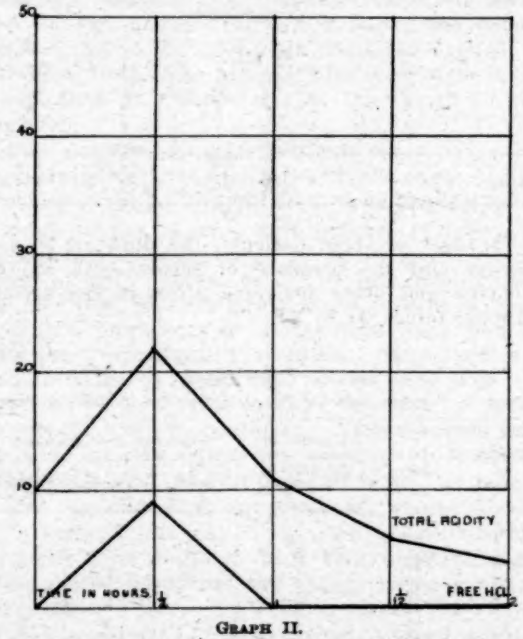


GRAPH I.

worst cases, accompanied by anacidity, the fasting juice consisted of thick muco-pus which was difficult to draw up in the syringe; in other examples the fasting juice consisted of a thin turbid fluid with a thick sediment after standing for a few hours. (iii) Streptococci present in immediate smears and in cultures by the pathogen-selective method.

Four of the patients of this group have had daily attention for months, during which period the presence of pus has been noted constantly in the wash-outs. In a few the pus and mucus have disappeared under suitable treatment and the organisms have been reduced in number but are still present on culture. Graph I illustrates a typical gastric analysis from this group.

In the second group gastritis is again easily diagnosed, as there are: (i) Pronounced diminution of the secretion of free hydrochloric acid. (ii) Mucus and muco-pus present in the fasting juice, but never in the same amount as in the first group. The muco-pus persisted for months, even under daily lavage. (iii) Streptococci present in smears and cultures. Graph II illustrates this type of case.

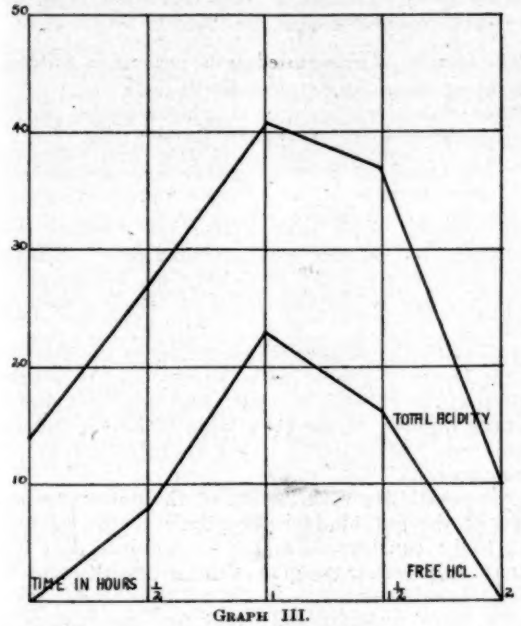


GRAPH II.

In the third group, comprising the cases with slight to marked hypoacidity, gastritis was diagnosed because of the following features: (i) Slight to moderate diminution of free acid. Very often free acid was absent from the fasting juice, sometimes from the half-hour specimen and almost always at the end of two hours. (ii) The presence of some muco-pus in the fasting contents. Daily wash-outs have been done to show the presence of pus over a period of time. (iii) The presence of streptococci in smears and cultures. Graph III illustrates this type of case.

The fourth group includes those cases with normal gastric acidity, and the following features

are present: (i) Normal acidity. (ii) Muco-pus in variable quantities. (iii) Streptococci were found in smears and cultures in seven cases out of thirteen. Gastritis is not diagnosable with certainty in this group when pus is absent and the cultures are sterile, but it is questionable whether in these



GRAPH III.

patients a normal acidity always means a normal mucosa. Graph IV illustrates this type of curve.

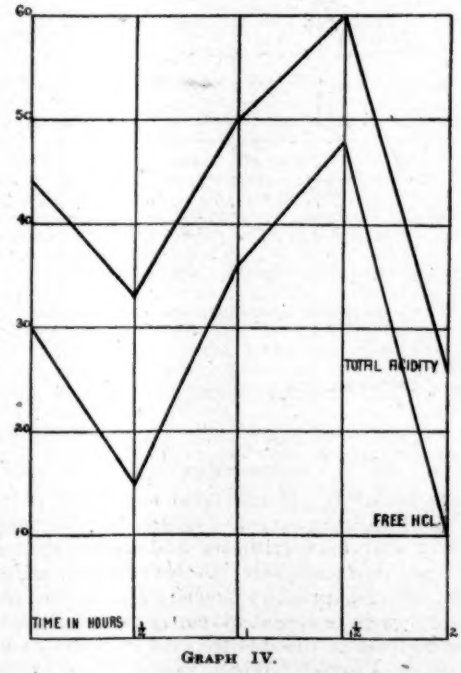
In the fifth group the following features were found: (i) High acid curves without any clinical symptoms of ulcer. (ii) Pus cells were present in the smears in all cases; excessive mucus was not present. (iii) Streptococci were present in the smears in three cases and in one the streptococci survived in cultures. Graph V illustrates this type of curve.

The diagnosis of gastritis in this group has to be made with due caution and clinical acumen, but since Faber[1] regards gastritis with normal or increased acidity as a common disease, and, owing to the fact that these patients improve on appropriate treatment, we believe that in many the diagnosis is justified. This view is supported by the following cases: (i) Mr. C. (rheumatoid arthritis), examined in the Royal Prince Alfred Hospital in 1932 and hyperacidity reported, now in Group II of this series. (ii) Mr. J. (rheumatoid arthritis), examined in the Royal Prince Alfred Hospital in 1930 and hyperacidity reported, now also in Group II. (iii) Mrs. C. (rheumatoid arthritis), examined at the Community Hospital in 1933 and hyperacidity reported, now also in Group II.

These three patients showed over a number of years a gradual descent from hyperacidity to a pronounced hypoacidity. The period of time from the stage of irritation of the gastric mucosa to that of partial atrophy or inhibition of function of the acid-forming cells was only a few years. As the acidity diminished, so the rheumatoid arthritis gradually increased its hold, or, in other words, the decrease of acidity meant increase in the severity and extent of the rheumatism, until finally a pronounced hypoacidity almost determined a destiny of rheumatic crippledom. Hurst[6] has been insistent about the importance of anacidity as a precursor of chronic arthritis and other diseases, but emphasizes a familial or constitutional basis for the absence of acid. This is not borne out by the facts here presented.

Two of these patients improved greatly under appropriate treatment. The first, Mr. C., improved to a certain extent, grew tired of treatment and sought further advice, still with a very abnormal sedimentation rate.

In the seven cases of Group V which suggest the hyperacidity stage of gastritis, we assume that during this period the excessive acid prevents or inhibits the growth of streptococci on the surface mucous membrane, but that they continue to grow in the mucosal or submucosal layer, therefore being the cause of the gastritis which later will produce hypoacidity or complete absence of free acid. It is to be noted that in one member of this group a *Streptococcus viridans* was obtained from the gastric contents. This stage of early gastritis is



GRAPH IV.

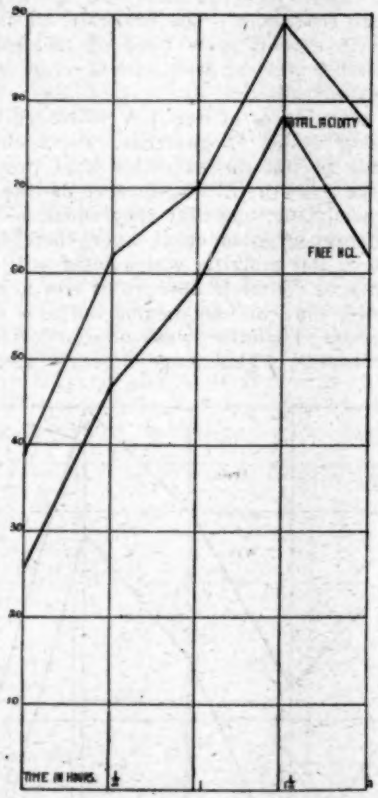
frequently overlooked, but as it progresses to hypoacidity and finally to complete absence of free acid, it should be extensively and thoroughly treated.

Treatment in this stage may to a great extent prevent the cases of complete anacidity and thereby

diminish the crippledom which occurs as the arthritis progresses *pari passu* with the gastritis.

As the use of repeated test meals becomes more common in arthritis, so will these statements be proved or disproved. Unfortunately, these were the only three patients who had had repeated gastric analyses over a period of years; several more had had analyses months or weeks previous to coming under our observation, and many had several during our period of observation.

These findings would also explain the varying results of gastric analysis found by different workers.



GRAPH V.

Discussion.

There seems to emerge from the study of these facts the following series of events. In rheumatoid arthritis and osteoarthritis and other rheumatic conditions, but especially in rheumatoid arthritis, removal of the primary focus of infection in the early stages is followed by complete relief of signs and symptoms of the disease, and in many cases no recurrence is noted. When, however, the organism gains a foothold in the gastric mucosa, there are three definite stages of acid secretion, namely, hyperacidity, hypoacidity and complete absence of free acid, a picture which may take many years to complete.

It is more than probable that the infecting streptococcus is derived from the primary focus, but that in the new environment the organism undergoes alteration in character. When once the mucous membrane of the stomach is infected, removal of the primary focus may not influence the course of the disease, a fact noted by observers in regard to other secondary foci.[7]

The results of infection may be set out as follows:

Stage of hyperacidity: Irritative gastritis.

Stage of hypoacidity: Partial inhibition and possibly atrophy of some of the acid-forming cells.

Stage of complete absence of free acid: Complete inhibition of secretion or atrophy of the acid-forming cells.

If atrophy does take place, no recovery can eventuate, but as recovery does take place, in many cases the lesion must be purely an inhibition of secretion due to inflammation of the acid-forming cells.

In health the factors which influence the sterility of the stomach appear to be varied, and it is probable that the chronic ill-health and improper diet of a large number of these patients make the mucous membrane particularly liable to infection by the streptococcus.[9]

The possibility of infection of the duodenum and even of the gall-bladder secondary to the stomach has to be considered, and it is possible that duodenal cultures may give similar results to the stomach cultures.

We have unfortunately had no opportunity of studying normal controls, and Rehfuss[10] claims to have found streptococci in both the stomach and duodenum of normal medical students.

We are at present very doubtful as to the pathogenicity of the streptococci present in the fæces.

The amount of free hydrochloric acid which the streptococcus will survive appears from these results to be much greater than has previously been believed. Kolmer observed that the streptococcus was most susceptible to destruction by hydrochloric acid[11] and would not survive a free acidity above 10 to 15, but mentions that organisms may be given a certain amount of physical protection by mucus.

The degree and area of the primary focus and the presence of secondary foci of infection must determine the success or failure of treatment of many cases of rheumatic disease. If the infection exists only in the nose, antra, tonsils or teeth, removal of sepsis is followed by complete recovery. If removal of such foci is followed by only partial or no recovery, the gastric mucosa should be investigated and treated, as infection in this region may partly account for the well-known fact of chronicity and resistance to treatment of many of these cases.

We do not wish to infer that the gastric mucosa is the only mucous membrane infected in resistant cases, as these rheumatic conditions appear to affect mucous membranes so that they lose their power to resist streptococcal infection. Further,

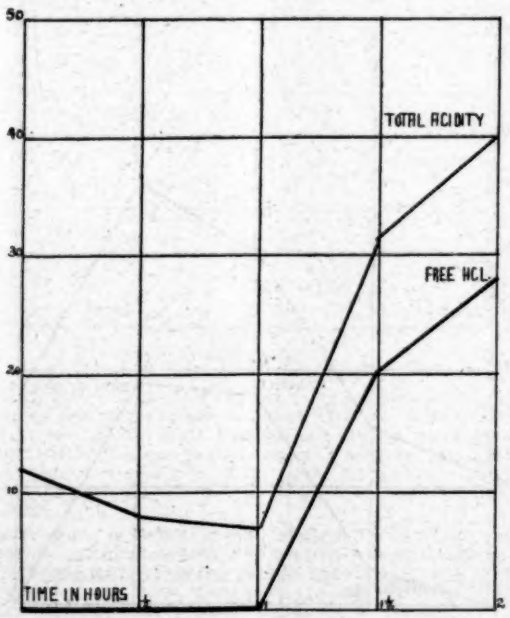
we are making no extravagant claims to cure all cases, but we do believe that adequate attention to the gastric mucosa will greatly ameliorate the condition of many and cure a large number of these chronic rheumatic conditions.

Any medical practitioner who determines to carry out gastric lavage in suitable cases will quickly disperse any doubt he may possess as to its efficiency and ability to produce rapid general and local improvement. The absence of muco-pus, "negative" cultures and normal acid secretion, together with a normal sedimentation rate, which may be obtained after a long period of treatment, are taken as an indication of cure from the laboratory viewpoint.

Although we have used the Solis-Cohen method of culture throughout this series of investigations, we wish to stress the fact that at present we do not regard it as strictly pathogen-selective, but merely as an excellent method of obtaining pure cultures of streptococci and of avoiding contamination.

The following notes show the results in three patients under treatment, with special reference to the gastric acidity. Sufficient time has not elapsed for the notes of all the patients in this series to be available, but these three are representative.

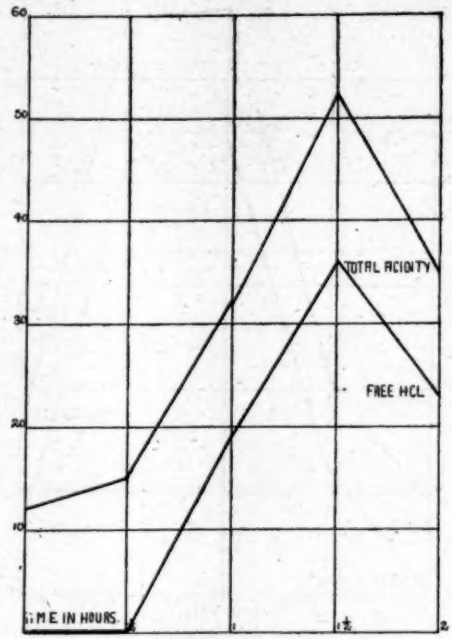
CASE V.—Miss D., aged twenty-three years, suffered from rheumatoid arthritis for seventeen years. The fingers and wrists became affected at the age of five years and had been treated all over the world. The elbows and knees were affected. The patient's colour was pale and she looked unhealthy and anæmic. A test meal was given on November 19, 1935; the result is shown in Graph VI.



GRAPH VI.

A few pus cells from the sediment and hæmolytic streptococci were grown in pure culture.

Treatment in hospital consisted of the use of insulin and glucose, which rapidly reduced the sweating of the hands, a prominent feature for years. Stomach lavage, with injection of ergamine, one twenty-second of a grain, was carried out for three and a half months. The weight, general condition and colour improved rapidly, and a test meal on February 17, 1936, gave the results shown in Graph VII.



GRAPH VII.

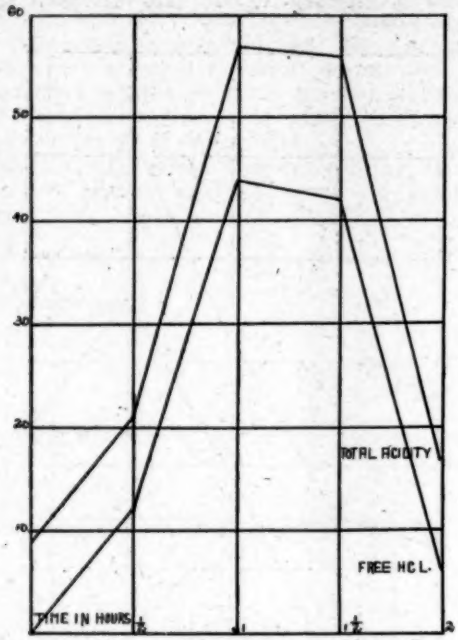
A few pus cells and streptococci were still present. The joints had improved and there was practically no pain or morning stiffness. A holiday in the country helped to consolidate the gain. The patient returned to hospital, and the same treatment, with the addition of paraffin wax baths, by which the temperature was raised to 38·3° C. (101° F.), was given. Her condition still continued to improve, but she contracted an undefined acute illness which lasted for one month, with a temperature of 40° C. (104° F.) on many occasions.

The remainder of the swelling and pain rapidly disappeared, and with the termination of the fever all the joints had lost pain, stiffness and swelling. One month later the weight had increased by 9·5 kilograms (one and a half stone) and the arthritis had disappeared. A test meal on July 15, 1936, gave the results shown in Graph VIII. A few pus cells were still present and streptococci was present on culture.

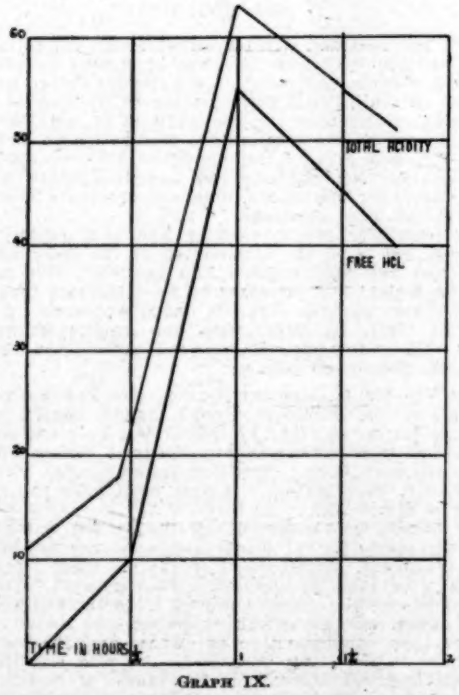
CASE VI.—Mr. O., aged thirty-nine years, had had severe arthritis of the shoulders, elbows, hands, fingers, knees and feet for six months; his colour was pale and sallow and he had rapidly lost weight. His teeth were all false; his tonsils were infected and both hæmolytic and viridans streptococci were present. A test meal gave the result shown in Graph IX.

The tonsils were removed and the patient was placed on hyperpyrexial baths, colonic lavage and mercury vapour lamp treatment. Small doses of vaccine made from the tonsils were used in addition. Four months later his condition was not much improved. Insulin and glucose were added, but the weight remained the same. The patient then commenced to get worse and the swelling and pain in the joints increased. He was admitted to hospital and was starved for four days; starvation was followed by a low caloric and low carbohydrate diet, which brought about improvements in the joint condition. The diet was gradually increased and insulin and glucose were added. The patient gained 1·35 kilograms (three

pounds) in weight during the next three months. "Myocrisin", vaccine, old tuberculin and "Iodolysin" internally were all tried. The sedimentation rate was still very abnormal.



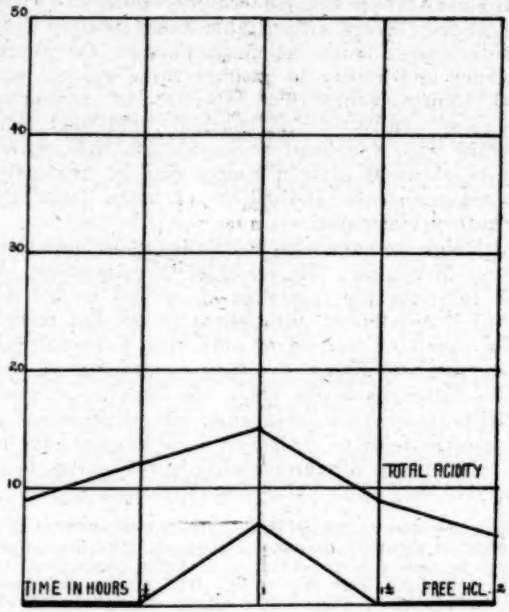
GRAPH VIII.



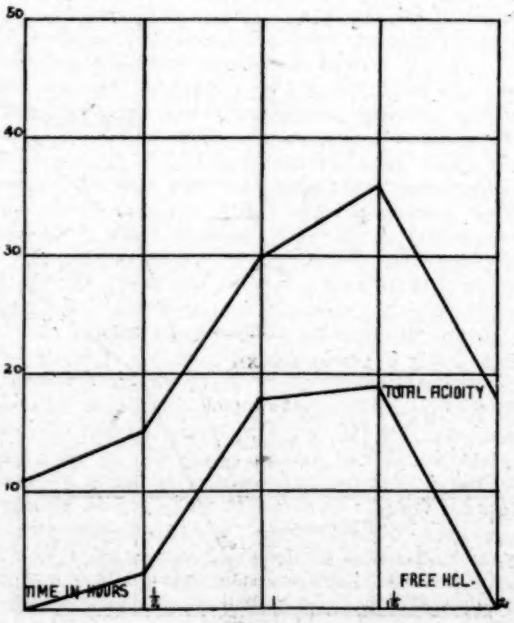
GRAPH IX.

During the next three months he gained weight slowly. The pain and stiffness became less. The tongue was still coated and the taste in his mouth was unpleasant. Appetite was only moderately good. Gastric analysis at this time gave the results shown in Graph X.

The stomach was full of muco-pus and streptococci were present on culture. Lavage of the stomach was carried out and the patient was sent away with instructions to continue the lavage.



GRAPH X.



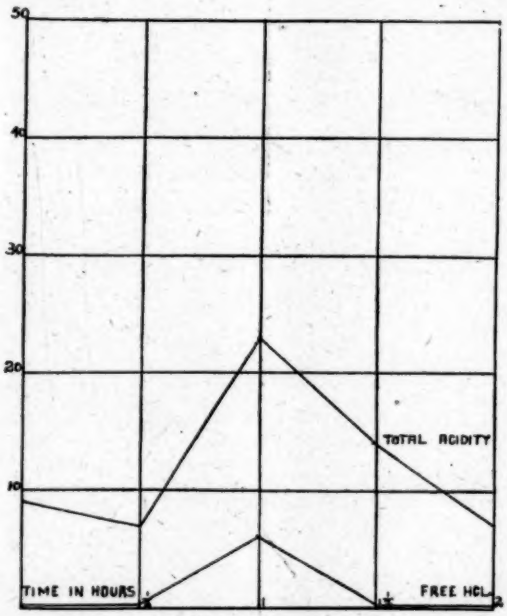
GRAPH XI.

He returned after two months and had gained weight, was of good colour, and the joints had markedly improved; he was walking fairly easily and with increased range of movement in the arms.

Gastric analysis on June 4, 1936, gave the results shown in Graph XI. The amount of pus had decreased. Clinical improvement and improved gastric secretion coincided.

Lavage of the stomach was carried out daily for six months, and a comparison of the charts at different intervals shows that before lavage was commenced the gastric mucosa gradually became more infected. From January to November, 1935, there was a gradual diminution in free acid and increased infection. His arthritis had improved slightly and the sedimentation test gave a more satisfactory result, but the gastric mucosa was steadily becoming more pathological. The subsequent treatment had altered the whole outlook, both as regards the joint condition, gastric acidity and infection.

CASE VII.—Mrs. P., aged thirty-eight years, had *spondylitis ankylopoietica* of the whole vertebral column. The neck was rigid and flexed. The disease had commenced in the sacro-iliac region ten years previously. The tonsils were present and septic, the patient's colour was pale and sallow, the tongue was moist and coated. Gastric analysis on March 9, 1936, gave the results shown in Graph XII. Pus cells and numerous organisms with an excess of mucus were present. *Streptococcus viridans* was present on culture. Gastric lavage was commenced immediately.

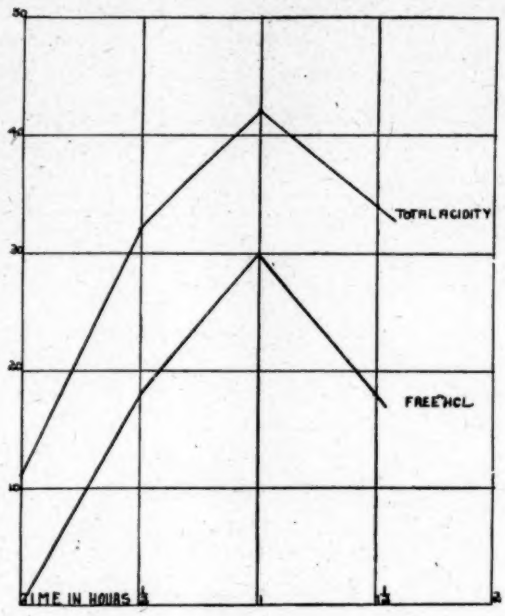


GRAPH XII.

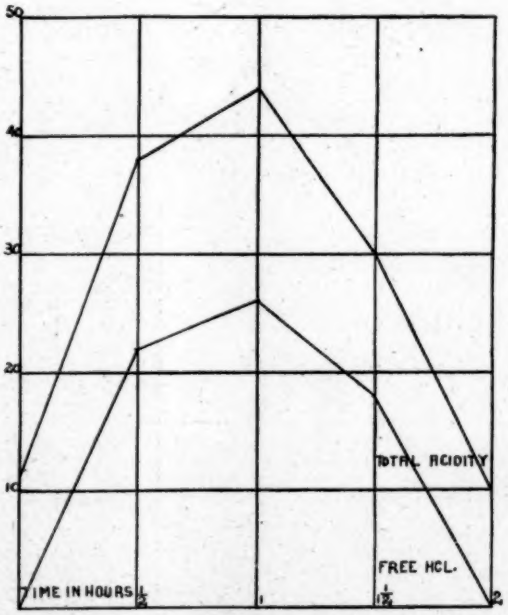
Treatment consisted of the ordinary hospital diet, with 4·0 cubic centimetres (one drachm) of dilute hydrochloric acid three times a day. Insulin and glucose were given daily. Histamine, one twenty-second of a grain, was given every day. An emulsion of cod liver oil was also given. Gastric analysis on March 7, 1936, gave the results shown in Graph XIII.

There were only a few pus cells in the sediment, but numerous organisms were still present. Gastric analysis on June 30, 1936, gave the results shown in Graph XIV. No pus or red cells were seen in the sediment, but organisms were still present, including streptococci.

The sedimentation rate had improved 50%, but was still abnormal. The patient's clinical improvement was dramatic: her colour changed rapidly for the better; sleepless nights were replaced by nights of natural rest, the pain in the back, thighs and neck being considerably reduced. Walking, which had been possible only with extreme effort, became less painful and finally was extremely good. Even the neck, which had seemed rigid beyond repair, contributed its quota to the general improvement, and slight rotation, flexion and extension were now possible. Her gain of weight during the three



GRAPH XIII.



GRAPH XIV.

months' treatment was 6·0 kilograms (thirteen and a half pounds), and this gain coincided with the improved appetite after gastric lavage.

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Reports of Cases.

SPONTANEOUS RUPTURE OF THE ABDOMEN.

By RICHARD D. DAVEY, M.B., Ch.M. (Sydney),
Croydon Park, New South Wales.

ANSWERING an urgent call on the evening of May 25, 1936, I found myself confronted with a scene I shall not readily forget. Sitting precariously on the edge of a chair, and supported by friends, was a woman, aged thirty-five years, of small stature and somewhat emaciated appearance. Surrounding her and covering the full expanse of the floor of the room was a brownish fluid, very slippery underfoot. Two of the friends present had already fallen headlong onto the floor in trying to lift the patient off a commode, and their clothes were almost saturated. The patient's abdomen was of enormous size and was resting on a bucket, now overflowing with a thick coffee-coloured fluid which was escaping in a copious jet from an aperture in her anterior abdominal wall. The patient was *in extremis* and died about ten minutes later. In the meantime the bucket had been filled five times (as also had a commode). The abdominal rupture was large enough to admit a forefinger; and at one stage the issuing fluid formed a jet extending about four feet out into the room. As a result of a cursory external examination and questioning the husband, the course of events was as follows. Following a confinement four years ago, an abdominal tumour developed and rapidly increased in size, being variously diagnosed as "hydatids" and ovarian cyst, operation being declined by the patient. The tumour became so large that locomotion became impossible; the tumour was virtually bigger than the patient herself. Large varicose veins coursed over the anterior abdominal wall. A month previously the patient sustained an abrasion to the skin in this area, and this took on the indolent characteristics of an ordinary varicose ulcer, gradually increasing in diameter and sloughing deeply into the tissues of the abdominal parietes. At the time of rupture the patient was straining at stool, and I estimate that before death at least ten gallons of fluid had escaped and half that quantity was still unevacuated when the body was laid prone after death. I have no doubt the tumour was an ovarian cyst.

Reviews.

A TEXT-BOOK OF GYNÆCOLOGY.

DR. WILFRED SHAW has a high reputation in Australia for his work on disorders of menstruation, the endocrine glands and other gynæcological subjects. In the preface of his book on gynæcology Dr. Shaw acknowledges indebtedness to the leading gynæcologists of the day, British, Continental and American, and the result of his research is seen in his up-to-date text-book, admirable in every way for examination or reference purposes.[1]

Anatomy and physiology are dealt with more fully than is usual in clinical gynæcological text-books, "because it is believed that future advances are more likely to emanate from these sources". The drawings and plates, mainly from the superb illustrations in the works of Peham-Amreach and Veit-Stoeckel, are most helpful. The physiology of the endocrine system is treated most lucidly and will be very useful to the practitioner.

Menopausal symptoms, the author holds, are not so much improved by œstrin preparations as by thyreoid extract.

We agree that time spent in taking the patient's history is never wasted; also that the passage of clots indicates excessive menstruation. The difference between hæmorrhage in various parts of the menstrual cycle and continuous hæmorrhage is stressed.

The treatment of abnormal hæmorrhage in girls and young women "is not very hopeful". X rays and radium are condemned (page 322) on account of the serious menopausal symptoms produced by them and the not uncommon sequence of kraurosis. As a last resource hysterectomy may be performed, and this has the advantage that the ovaries may be preserved, as they always should be. Sometimes success is obtained with *corpus luteum* hormone and also with curettage.

In metrorrhagia the intermenstrual bleeding is sometimes comparable with the proœstrus of animals and is caused by the oozing of blood from the endometrium at the height of the proliferative phase of the menstrual cycle. The term *metropathia hæmorrhagica*, in the author's opinion, should be reserved for those cases in which there is no local cause in the uterus for the bleeding. In our experience there almost always is such a cause, and total hysterectomy is the safest treatment.

Curetting is mainly performed for diagnostic purposes; the author might have added that biopsy of uterine scrapings is not always reliable and is attended with danger of disseminating cancer cells. "A blunt curette should always be used for post-abortion cases." Some surgeons think that a sharp curette, lightly used, is safer.

"Senile endometritis should always be regarded as a form of intermittent pyometra." Hence the wisdom of avoiding procedures which tend to cause stricture of the cervical canal.

The treatment of acute cervicitis consists of rest in bed and douching with hydrogen peroxide four times a day. At a later stage applications to the interior of the cervix are made by cotton wool wrapped round thin sticks of wood or a Playfair's probe. Long, thin, bowed sinus forceps are sometimes used for this purpose. The local application of silver nitrate in *Spiritus Ætheris Nitrosi* is not mentioned. Diathermy is praised, but some dispute the author's statement that the gonococcus is more sensitive to heat than the surrounding tissues; there is also danger of stricture following all forms of cautery, with subsequent impaired drainage.

Schiller's method of diagnosing between early carcinoma and ordinary erosion by means of Lugol's solution of iodine is described. Plastic operations for chronic cervicitis are commended; the operations are described, but not illustrated.

[1] "Textbook of Gynæcology", by W. Shaw, M.D., F.R.C.S., F.C.O.G.; 1936. London: J. and A. Churchill Limited. Royal 8vo, pp. 595, with four plates in colour and 234 text figures. Price: 18s. net.

Prolapse and displacements of the uterus are preceded by an excellent account of the pelvic anatomy with splendid illustrations by Peham-Amreach. In prevention the value of pelvic floor exercises after child-birth is rightly emphasized, but we do not understand why the author recommends Auvard's weighted speculum, which has seriously damaged the pelvic floor of many women. In the treatment of prolapse we should have liked to see the author unsparingly condemn all forms of soft rubber pessaries, because of the great irritation which they produce. He does, however, issue a warning against their prolonged retention. The operative treatment of prolapse is well illustrated from Peham-Amreach and Eden and Lockyer. We would venture the criticism that it is better to catheterize the bladder at the time of operation rather than half an hour before; also that a purse-string suture through the vesical fascia should be avoided as tending to shorten the anterior vaginal wall and being less likely to produce a good anatomical result. We also disagree with the statement that "Fothergill's operation is insufficient for complete procidentia".

The author is on sound ground when he says that retrodisplacement often produces no symptoms and needs no treatment. The Alexander-Adams operation is recommended for mobile retro-displacement. Many practical points in diagnosis and treatment are explored.

Aveling's repositor is advocated for chronic inversion of the uterus, notwithstanding the very severe pain and shock which it causes; Haultain's posterior hysterotomy has, to our knowledge, been used with success.

For the treatment of myomata various procedures are carefully considered and described, but the Worrall total hysterectomy technique is not mentioned. We agree that X rays and radium should have a very restricted field in the treatment of these conditions. On page 445 the author recommends that large intrauterine polypi be made accessible and removed by anterior colpotomy. Surely anterior hysterotomy is the proper term.

Cancer of the cervix is well treated; "whether radiological or operative treatment be adopted the percentage of five-year cures is the same, but, as the radiology has a much smaller primary mortality, this should be favoured". Wertheim's operation is well illustrated.

In discussing cancer of the uterine body the author states that all women of menopausal age with continuous bleeding should be investigated by curettage. Many experienced surgeons, however, think that it is safer to proceed at once to hysterectomy so as to avoid the danger of disseminating cancer cells. "The general feeling is that cancer of the body is best treated surgically whenever possible rather than by radiological means." We agree.

All forms of polypi are well described. There is an excellent chapter on radium and on radium therapy, including X ray treatment; and both the Paris and the Stockholm techniques are described.

If space allowed, we should wish to quote from the up-to-date chapter on adenomyomata and chocolate cysts of the ovary and ovarian growths in general.

In the treatment of inflammation and suppuration in the pelvis the author is not as lucid as usual. He is conservative, but does not take such a bigoted view as some writers. Thus he writes: "The best results are obtained if the case is treated conservatively for about a fortnight"; but later he discusses chronic cases and their treatment by hot air baths, diathermy, foreign protein and spa treatment. One conjures up a terrible prospect for the unfortunate patient lapsing into chronic invalidism. Again, conservatism which permits the development of such a deplorable condition, seems inconsistent with the statement on page 566 that "even with mild catarrhal cases there is always permanent damage to the ovaries and tubes. . . . Pockets in the tubes may be responsible for the subsequent development of ectopic gestation".

In operating, the surgeon "should effect the separation by starting from below and working upwards". Pear-like sacs are more easily removed from their containers by the small narrow end. We think that if the surgeon begins at the uterine end of the tube he lessens the risk of rupture of the pus sac.

One more quotation of the highest importance: "In young women some normal ovarian tissue should be retained if possible." This is good, but should go further. Apart from the tubo-ovarian abscesses, however inextricably the ovary appears to be mixed up with the tube, it can almost always be separated and the ovary preserved. If any doubt exists as to whether the ovary contains pus, a narrow-bladed knife should be passed into the ovary and rotated on its axis. The condition is thus disclosed.

We have seen such tragedies from the unnecessary removal of ovaries from young women that we consider the surgeon who does this is guilty of inflicting "grievous bodily harm".

We consider the best treatment of pelvic suppurative conditions is by the Worrall two-stage method of operation, published in *Surgery, Gynecology and Obstetrics* in 1925.

Although we have ventured to make a few criticisms on this book, we regard it as one of the best expositions of modern gynæcology.

RADIOLOGY AND PATHOLOGY.

RADIOLOGY is a means of visualizing pathology—a simple truth seldom realized. In "A Textbook of Roentgenology", by Dr. Bede Harrison, this luminous principle has been expanded into a complete and systematic work dealing primarily with the correlation of these two branches of medicine.[1] That the radiologist should speak in terms of pathology is an indication of his legitimate desire to be recognized as a clinical consultant and at the same time an assertion of the logical bases upon which his specialty is built. "Roentgenological investigation is clinical procedure, roentgenotherapy is clinical treatment", writes Dr. Harrison in his introduction, and throughout he addresses himself not to radiologists especially, but to clinicians as a whole. He aims to supply the answer to the clinician's question: "What can X rays do to help me in this condition?" At the same time he demonstrates that the answering revelation by X rays is in terms of structural pathological change. The values of the X ray examination in general and the indications for the X ray examination in particular are adequately dealt with, disease by disease and region by region, with constant emphasis upon the necessity for collaboration between clinician and radiologist. The indications for radiotherapy are discussed, but with a partisan dogmatism which uncritically accepts almost any vaunted success as established truth.

The book has no direct technical interest for the X ray specialist, as all technical details of execution and interpretation are omitted, excepting those that are necessary for the more general understanding of the clinician. In spite of this omission, which is deliberate, the book has an appeal that is wider and better than mere detailed technical specialism. The pages are crammed with facts of radiological significance, but more valuable still is the point of view identifying radiology as a method of investigation that reveals the fundamental anatomical changes accompanying disease. The study of radiology from such an angle is a valuable antidote to the passion for empirical detail shown by the older school of radiologists. To highly specialized minds such a book may seem neither fish, flesh, fowl nor good red herring, but actually, today, planned works of integrative and correlative purpose are more necessary than fresh research. We need pauses to assimilate our facts, and a book like this provides a store of calm and leisured reading wherein the mind is not harassed by new knowledge, but peacefully follows the parallel unfolding of two familiar but separate themes and finally achieves a restful intellectual satisfaction as opposing elements link into place.

[1] "A Textbook of Roentgenology: The Roentgen Ray in Diagnosis and Treatment", by Bede J. Michael Harrison, M.B., Ch.M., D.M.R.E., F.A.C.R., with preface by A. Howard Pirie; 1936. Baltimore: William Wood and Company, Medium 8vo, pp. 852, with illustrations. Price: $10.00 net.

Selection, compilation and arrangement are not well done, for much matter, irrelevant to the purpose, has been included. There is a prostrating completeness about an author who will always begin his subject with pages of elementary anatomy and physiology reminiscent of Cunningham and Halliburton in their least interesting moods. In writing for grown men some first principles must be taken for granted, or the constant harking back to primary elements finally becomes as irritating as unasked advice. On the other hand, some passages, particularly those dealing with pathological conditions, are so heavily condensed that they smack of the synopsis and lose both coherence and interest. Throughout there is a suspicion of hasty, unrevised writing, of ill-balanced arrangement and of literary roughness. As early as the ninth line of the introduction on the first page we meet a plural subject with a singular verb. The illustrations are relatively few. They are badly chosen, poorly produced, and carelessly arranged, for some of them are upside-down.

This is a very uneven book, inspired, learned and purposeful in general outline, but marred by hasty compilation and lack of revision. In fairness, however, its literary imperfections may be justifiably forgotten, as we endorse its point of view and commend its substance. Its faults will doubtless be corrected in future editions and the work will then appear in a guise consistent with its high clinical value.

SYMPTOMS AND DIAGNOSIS.

A BOOK which deals with disease from an unusual angle is the "Examination of the Patient and Symptomatic Diagnosis", by Dr. J. W. Murray, of Missouri.[1] It is divided into two sections; the first, of four hundred pages, is entitled "History Taking", and the second section deals with "Diseases of Single Organs or Systems of the Body".

This volume, with its twelve hundred pages of facts, must have entailed an immense amount of work for the author, and though some may find it handy as a reference book, its very length precludes it from being widely used by practitioners. It is far too long for the importance of its subject matter, which is mainly lists and lists of the symptoms which may occur in various diseases and how these symptoms may be used to make a correct diagnosis.

The section on history-taking is difficult to follow, as the author is so verbose and adheres to no definite plan. "Past History" is interposed between "Family History" and "Nervous and Mental Diseases"; "Pregnancy" is placed between "Diseases of the Nervous System" and "Routine Procedure in all Types of Cases". A page on "Flatulence" is followed by three on "Laboured Breathing" and then eight on "Urine". "Psychic Condition" is followed by "General Appearance", so that it is really impossible to follow the author's line of thought.

The history-taking is in the form of questions and answers, and many of both the questions and answers have neither subject nor verb. For example:

Question: "Are there ulcers on the lips?"

Answer: "Evidence of herpes, chancre or epithelioma."

There is an interesting section, extending over seventy pages, on various types of pain, and the diagrams are useful.

The second section is better arranged, but the major part is still written in the form of questions and answers. The different systems are discussed in turn, and this section could easily have been made to serve the purpose of the whole book.

Each section is commenced with a plan of history-taking and then the symptoms of the diseases of that system are discussed in detail. Even here the author transgresses his own plans, as, for instance, when discussing present symptoms of a patient suffering from any form of heart disease, he inserts several pages on pericarditis.

Despite the length of the book there are grave omissions; for example, he does not mention the possibility of malignant disease occurring in the larynx of a patient whose disease is labelled chronic laryngitis.

The diseases of the special senses are almost omitted altogether, only one page being devoted to deafness; the section on gynæcology is most inadequate.

Altogether this is a most irritating book, badly arranged, ungrammatically expressed and poorly illustrated. Despite the mass of information contained therein, it is unlikely to appeal to the medical profession of Australia.

[1] "Examination of the Patient and Symptomatic Diagnosis", by John Watts Murray, M.D.; Second Edition; 1936. St. Louis: The C. V. Mosby Company. Medium 8vo, pp. 1219, with 274 illustrations. Price: $10.00 net.

BURNS AND SCALDS.

THERE are few books more deserving of universal popularity than Mitchiner's excellent monograph on burns and scalds.[1] While the main emphasis is directed to the subject of the actual title, the author has managed to include within the sixty odd pages a concise review of the pathology of burns and scalds, a reference to the treatment of the late sequelæ, some suggestions for the wider employment of tannic acid, and a most useful opium dosage table. Naturally, the title refers to the tannic acid treatment, and surely there could not be a clearer or more concise and useful description of the methods. Many will find particular interest in the chapter dealing with special burns—those associated with electricity, chemicals, gases, explosives *et cetera*. The subject is presented in such a way that the book should be of great assistance to those many lay individuals and organizations which come into contact with these problems in the industrial and other spheres; to the medical profession—senior practitioners and students alike—it can only be commended in superlatives and recommended as indispensable.

SYNOPSIS OF THE PHARMACOPŒIA.

THE popularity of Wippell Gadd's booklet, containing a synopsis of the British Pharmacopœia, is evidenced by the fact that the thirteenth edition is now published.[2] It is so small that it may be readily carried in the pocket. Its publication coincides with the settling of the new poisons list and rules in England, and a concise summary is given of the latest enactments. The *Dangerous Drugs Acts* are also set out. It is a thousand pities that uniformity has not yet been attained in the States of the Commonwealth of Australia concerning these matters. In addition, the booklet is crammed with information on many matters of interest and importance. Amongst these may be mentioned acid value, saponification value, iodine value, optical rotation, thermometric scales, elements and atomic weights, with the English and metric systems of weights and measures. A complete table is given of all chemicals, drugs and preparations in the Pharmacopœia. We can only hope that in the next Pharmacopœia there will be a ruthless elimination of superfluous or futile preparations. In the meantime their various doses have to be remembered. Some useful observations on the sterilization of different solutions are included. This is altogether a useful little volume.

[1] "The Modern Treatment of Burns and Scalds", by P. H. Mitchiner, M.D., M.S., F.R.C.S.; 1935. London: Baillière, Tindall and Cox. Demy 8vo, pp. 72, with 12 plates. Price: 5s. net.

[2] "Synopsis of the British Pharmacopœia, 1932, and of the Poison Laws", by H. W. Gadd; Thirteenth Edition; 1936. London: Baillière, Tindall and Cox. Medium 32mo, pp. 200. Price: 3s. net.

The Medical Journal of Australia

SATURDAY, SEPTEMBER 12, 1936.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

LOOKING AHEAD.

For more than twenty-two years THE MEDICAL JOURNAL OF AUSTRALIA has served as one of the binding links between the Branches of the British Medical Association in Australia. Together with the Federal Council, formerly the Federal Committee, and the sessions of the Australasian Medical Congress, it has held the Branches in closer union than was thought possible before its establishment in 1914. The objectives of the journal have necessarily been those of the whole Association, and any success that has been achieved in either the scientific or medico-political sphere has been in large measure due to the cooperation of members of all six Branches. Though happily some of the founders of the journal are still able to take an active interest in its affairs, a generation is growing up that knows nothing of the struggles and difficulties of the early years. There is a danger that the journal may be taken for granted, that a sense of pride in its possession may be lost and a feeling of responsibility for its future lacking. Reference to the journal and to the Australasian Medical Publishing Company, Limited, that came into being that the journal might be established, is opportune in view of the encouraging report of the directors of the company for the year ended June 30, 1936, that was published in the issue of August 29.

During the half year covered by the directors' report provision was made for the extension of editorial discussions and the publication of special articles or special abstracts on subjects of importance. Already contributions on the histidine treatment of peptic ulcer, on the hydrogen ion concentration of the blood, on virus disease and on tissue culture have been published. Further articles will appear in due course. Here we would point out that the subjects chosen cannot always be treated in a simple fashion, that just as wide reading and experience are necessary to the writing of these articles, so close attention and intelligence must be brought to the understanding of them. The lazy practitioner who objects to "high-brow current comment" must become less lethargic if he is to profit by what is provided for him. Good meat is the food of strong men, and, after all, medicine is supposed to be one of the learned professions. Editorial discussions and specially contributed articles, however, will not of themselves make the journal useful to the members of the Branches. That members can get from the journal only what they put into it by direct contribution, encouragement or helpful criticism is a statement that has to be made far too often. It is here that the pride of possession already mentioned is needed. The Editor of the journal works somewhat at a disadvantage on account of the great distances separating the several Branches. He has a representative, however, in every State, and from time to time he pays official visits to the Branches to make personal contact with members, to awaken interest among them, and to learn at first hand something of their problems. While pointing out that this interest must be extended if the journal is to continue to be effective, we would express our sincere appreciation of the way in which many

members of the Branches year in and year out help the journal work by abstracting articles from current literature and by reviewing books. Work of this kind is increasing and offers of assistance from younger members will be welcomed.

The journal is the property of the Branches, and the Branches control it indirectly through the Australasian Medical Publishing Company, Limited. It follows that pride of possession will be greater and feeling of responsibility for the future will be keener as the company prospers and makes a stronger and wider appeal to members. The affairs of the company are in a satisfactory condition. The recent additions to The Printing House have been more than justified and additional machinery has been installed. At the recent meeting the manager pointed out that in regard to printing and publishing of journals, apart from the work connected with THE MEDICAL JOURNAL OF AUSTRALIA, saturation point with the present equipment had almost been reached. There is room for another printing press of a special type, and before very long this will doubtless be installed. The capital of the company is represented by debentures held by members of the Branches in the several States, and the number of debenture-holders in each State is proportionate to the number of members of the Branch in that State. Debenture interest is paid regularly and the debentures are in fact a good investment. When a debenture-holder dies, his debentures are redeemable by the company. A considerable sum of money has already been spent in redeeming the debentures of deceased debenture-holders. If the present practice continues, all the debentures will eventually be redeemed. This is giving the directors of the company some concern. They recognize that the success of the company depends to a large extent on the number of members of the Branches who are interested in it. A sound financial investment generally provides motive for a strong interest, and the directors have therefore suggested that as debentures become redeemable on the decease of their holders, they should be taken up by younger members resident in the State in which the deceased lived. This suggestion should be put into action.

In discussing the future of the Australasian Medical Publishing Company, Limited, and of the journal which the company subserves, we have pointed out that the medical profession of the Commonwealth has a scientific printing press of which it can be proud, and a journal that we hope is worthy of their care. The future would seem to be bright, but real prosperity can be sustained only by a fostering of the federal spirit and a maintained personal interest.

Current Comment.

PNEUMONIA IN CHILDREN.

THE well-established follow-up services at large American hospitals are now beginning to bear fruit. It may be confidently anticipated that the next ten years will bring forth accounts of many series of patients with the same or similar diseases, whose progress has been subject to periodical observation of many years' duration. Such information will rapidly enhance our knowledge of prognosis and provide a firm basis for medical prophecy for the junior practitioner.

Jerome L. Kohn and Samuel B. Weiner began nine years ago to watch the results of treatment in all cases of pulmonary disease in patients discharged from the pædiatric service of the Mount Sinai Hospital, New York. They now publish the results of a survey of 1,000 such patients who were originally admitted as exemplifying "recent non-tuberculous pulmonary infiltration".[1] The object of their study was to trace the evolution, if possible, of chronic and subacute pulmonary disease. The follow-up service is apparently a highly efficient one, as attendance at the clinic was stated to be excellent. In all, 1,000 children were kept under observation between 1926 and 1933. All had been admitted to hospital as sufferers from primary acute pneumonia. Only seven had histories of recent measles or pertussis. There was a slight excess of boys over girls, and only 4% were negroes. One-half were under two years of age, and three-quarters under five years. The total mortality of the series was 19·9%—about one-fifth. The extraordinary vulnerability of children under two years of age to acute respiratory disease is shown by a mortality of 32·4% among children of this age group, as compared with a mortality of 5·5% among children who had passed their second birthday. Almost 70% of deaths occurred within the first two weeks of admission to hospital. Only two of the children who had recovered sufficiently to leave hospital, but who still showed some residual

[1] *American Journal of Diseases of Children*, May, 1936.

chest signs, died subsequently from a recurrent pneumonia.

In 56·8% of the deaths contributory or complicatory factors assisted in a fatal issue. Over 80% of the children left hospital alive. It is surprising to learn that 39·6% of these children were discharged with such signs as bronchial breathing, impaired resonance or râles; but we are told that radiologically visible infiltration could be considered extensive in less than 5% of the patients dismissed. Ten of these children, in whom abnormal signs persisted for two to ten years, form the subject of a separate simultaneous communication by Kohn. One died; the remaining nine are developing normally. None shows any evidences of pulmonary suppuration. One is said to have an "acquired cyst" and another a "pleural or pulmonary cavity" behind the heart. In half the remaining children the infiltration revealed by X rays and the positive physical signs had disappeared nine months later. The time of disappearance bore scant relationship to the clinical severity of the initial pneumonia. Thirty-five of the children were readmitted to hospital with a recurrent pneumonia on two or more occasions. The mortality rate in this group was 3·5%, as compared with 16·7% for the whole group. The same area of lung was not necessarily reinvolved.

Thirty-three of forty-six children developing empyema died. It would be interesting to know exactly how these patients were treated. Four patients had purulent pericarditis and seven had metastatic peritonitis. All these children died. No attempt was made at a complete bacteriological investigation.

The authors remark upon the difficulty of recognizing lobar pneumonia at this age, and upon the frequent lack of correspondence between physical and radiographic findings, which has also been observed in this country. New York has an unenviable reputation for fatal pneumonia. It is unlikely that one child in five dies of the disease in this country, but here is an interesting subject for a follow-up in an Australian children's hospital. The bacteriological aspects of pneumonia in children have not yet been worked out in detail, but such work is in progress in Sydney. The difficulty of obtaining sputum from young children is one factor that hampers progress; it has been overcome in some quarters by a laryngeal swab or lung puncture.

THE INITIAL VENTRICULAR COMPLEX OF THE ELECTROCARDIOGRAM IN CORONARY THROMBOSIS.

SINCE the early descriptions of Smith, Herrick and Pardee the recognition of coronary thrombosis by the study of the electrocardiogram is largely based upon certain characteristic changes affecting the connecting (or *S-T*) segment and the *T* waves. Latterly considerable attention has also been paid to the initial deflection, and it is becoming more commonly recognized that a prominent *Q* wave in the third lead has some reliable diagnostic significance in the presence of myocardial infarction, particularly that involving the posterior part of the interventricular septum. It must not be thought, however, that a large *Q* wave in Lead III is not seen apart from cardiac necrosis in this area. Coronary sclerosis without complete block, hypertension, pregnancy and obesity have all been found at times to be associated with such an appearance. A prominent and often broad *Q* wave in Lead I only, with conspicuous *S* waves in Leads II and III, is frequently a feature of curves illustrative of the T_1 type of cardiac infarction described by Parkinson and Bedford, but no constancy of form exists and there are many individual exceptions.

In view of the contradictory state of the literature, L. Feldman, of Illinois, has reviewed 108 electrocardiograms from patients in whom, he states, the diagnosis was based "on good clinical evidence".[1] Eleven cardiograms showed no change of any kind. In forty-five, various alterations were visible in the central and terminal portions of the ventricular complex, consistent with the clinical diagnosis, but without any changes of note in the initial ventricular deflection. The remaining 51 patients exhibited *Q* patterns associated with *T* changes. Of these, 19 only could be placed in the Q_1 group referred to above. Twenty were classified into the Q_3 group, all of which were combined with sharp inversion of the *T* wave in the same lead. Feldman did not follow up his patients to see how long these deformities of the curve persisted. In eight patients only was correlation between the form of the curve and the site of the infarct determined by autopsy. Four of those with Q_3 curves had posterior infarctions, but, as Feldman admits, the series was too small to permit of any definite conclusion being drawn.

Other series, larger in number, force the reader to admit that definite relationship obtains between classical $Q_3\,T_3$ types of curve and a posterior position of the infarct. The anomalies of coronary distribution, the secondary spread of the clot with double infarction, and high degrees of one-sided preponderance will always prevent a complete correlation between the anatomical findings and the form of the cardiogram. The cardiographic decision upon the mere presence of coronary thrombosis can be a most difficult problem at times. It is necessary to concentrate upon every feature of the curve which is known to be frequently affected. Feldman is correct in redirecting the cardiographer's attention to the voltage and form of the *Q* wave as a mark of present or past infarction, and in its inverse correlation with the *S* wave, before his attention becomes riveted upon the more familiar alterations in the remainder of the ventricular complex.

[1] *Archives of Internal Medicine*, June, 1936.

Abstracts from Current Medical Literature.

PHYSIOLOGY.

The Influence of Carbohydrate and Protein in the Diet on Digestion.

A DIET fad in great vogue at present is founded upon the idea that the stomach secretions are unfavourably affected by a mixed carbohydrate and protein diet. The whole idea originates, obviously, in the isolated scientific fact that proteins require a relatively high gastric acidity for initial digestion, while carbohydrates need an alkaline medium. Rehfuss recently published, for fifty cases of chronic illness, the gastric acid response to a protein, a carbohydrate and a mixed meal. He was unable to detect any notable difference in the average acid response to any of these meals. Independently, about two years ago, Harry Shay, J. Gershon-Cohen, and Samuel S. Fels (*American Journal of Digestive Diseases and Nutrition*, June, 1936) began a detailed study of the gastric response to similar meals in a group of healthy individuals. Five people, free from any organic gastro-intestinal disease, were studied by repeated fractional gastric analyses following meals of distilled water, a pure carbohydrate, a pure protein, and mixtures of the two. Four of the subjects had a normal gastric acid response and one suffered from achlorhydria. The studies were made in order to test the validity of the claims made that mixtures of protein and carbohydrate interfere with proper gastric digestion. The gastric secretory studies included the usual titration of acidity to Topfer's reagent and to phenolphthalein, hydrogen ion determinations, total chloride and quantitative pepsin estimations. Gastric digestion was followed by quantitative determinations of reducing substances and amino-acids in the separate fractions. More than 6,000 determinations were made on over 900 fractional specimens in the course of the studies. The results showed that: (i) Mixtures of carbohydrate and protein in the test meal do not in any way interfere with gastric secretion. (ii) Not only do these mixtures not interfere with gastric digestion, but carbohydrate digestion in the stomach is prolonged and encouraged by its mixture with protein. This is probably brought about by the more favourable reaction for continued ptyalin activity in the stomach as a result of the acid-combining power of the protein. The same would be true following any regurgitation of pancreatic amylase from the duodenum.

The Formation of Milk Sugar.

THE question of the origin of milk sugar is undoubtedly one of the most interesting problems of carbohydrate metabolism. As lactose is found only in milk, it is of interest to determine the mechanism of lactose synthesis in the body. Ancel P. Weinbach (*Journal of General Physiology*, May, 1936) has demonstrated that the actively lactating mammary gland has the power of synthesizing lactose. The mammary glands of rats in the height of lactation were frozen *in situ*, removed and dried in the vacuum in the frozen state. The dried gland added to pig serum, pig serum *plus* glucose, pig serum *plus* galactose, and pig serum *plus* lactose, then incubated at 35° C., yielded a synthesis of non-fermentable reducing disaccharide, having a reaction velocity of reduction resembling that of pure lactose. There is a short time storage of some forms of lactose precursors in the active mammary gland. This precursor is non-reducing, but becomes available and reducing when the gland is placed in a solution containing glucose.

Protein and Calcium Changes in Serum during Sleep and Rest without Sleep.

VARIOUS conclusions have been drawn from the repeated observation that during sleep there is a fall in total serum calcium. N. R. Cooperman (*American Journal of Physiology*, June, 1936) has undertaken some experiments to determine how much of this change occurs in ionizable calcium. In ten subjects on eleven nights it was found that after five to seven hours of sleep (the blood being drawn when the subject went to bed and immediately upon awakening) there was a slight decrease in total calcium (average 3%) and a larger decrease in serum proteins (average 10%), resulting in a small increase in ionizable calcium (average 5%), as determined by the McLean-Hastings nomogram method. In samples of blood drawn after the subject was awakened one and a half to two hours following the onset of sleep there was found a more pronounced drop in total calcium (average 5·5%); there was no greater decrease in serum protein than at the end of the longer periods of sleep, and no change was apparent in ionizable calcium. Similar results were obtained on the same subjects when they lay in bed awake for an equal length of time. It thus appears that whereas there may be a decrease in total serum calcium during sleep and rest, the concentration of the physiologically significant ionizable calcium is unchanged after short periods and consistently increased after long periods of sleep and rest.

An Assay of Urinary Œstrin and Gonadotropic Substances during Pregnancy.

J. S. L. BROWNE AND E. M. VENNING (*American Journal of Physiology*, June, 1936) have made a continuous assay in several pregnancies of the excretion of œstrin and of gonadotropic substance of the follicle-stimulating kind, using morning specimens of urine. Usually two or three days' specimens were united and assayed together. Gonadotropic substance was concentrated by the Katzman-Doisy procedure and œstrin was extracted with butyl alcohol and fractionated between this and 3% sodium carbonate. The test animal was the intact twenty-one day old rat. A positive vaginal smear was taken as a positive reaction to œstrin, and this, together with histological evidence of follicle stimulation, as a positive reaction to gonadotropic substance. The carbonate-soluble fraction was assayed directly without hydrolysis. The most striking feature of the œstrin excretion was its cyclic nature, which continued throughout the whole of pregnancy. The results of œstrin assay in one case were as follows. The period of the cycles from peak to peak varied from twenty-four to twenty-nine days. The menstrual cycle of the patient was twenty-eight days in length before pregnancy. This suggests that certain cyclic processes involved in œstrin excretion continue throughout pregnancy. Labour occurred during a low phase of œstrin excretion on the two-hundred-and-eightieth day, and was accompanied by a sudden sharp rise in the fraction of œstrin which remained in butyl alcohol. The excretion of gonadotropic substance was followed in five instances; in all there were similar changes. The substance was usually present at some point between the ninth and the fifteenth days (the number of days being reckoned from the first day of the last menstrual period), reappeared about the twenty-fifth day, and increased gradually up to the thirty-second day, the rate on this day varying between 200 and 500 units. From then on it rose rapidly, reaching a peak between the fifty-second and the sixty-fourth day, the values ranging from 133,000 to 400,000 units. About the sixty-seventh day the rate decreased sharply to 40,000 units. After the one-hundred-and-twentieth day it remained between 1,500 and 5,000 units. In one case followed to term there was no change on the day of labour.

Luteal Hormone in the Human Placenta.

K. EHRHARDT AND H. FISCHER-WASELS (*Monatsschrift für Geburtshülfe und Gynäkologie*, April, 1936) present their investigations concerning the *corpus luteum* hormone present in the human placenta. At term it was difficult to discover any luteal hormone in the placenta. The optimum period lay between the seventh and eighth months. In the first four months no hormone could be demonstrated, and similar results followed examination of placentas from post-mature cases. These results support the theory of Knaus that labour is due to a diminution of this hormone. While placentas from patients with eclampsia contained the hormone, no conclusions could be drawn regarding the ætiology of the toxæmias of pregnancy. Injection of placental extracts into infant rabbits

produced growth and hyperæmia of the uterus and vagina, but similar results follow the injection of follicular hormone. The extract also produces stimulation of the breasts, and in some cases activates lactation. The authors' experiments show that if the placenta is used as a source of luteal hormone, those of the sixth to eighth month should be chosen, for those at term or earlier in pregnancy contain very inconstant amounts of the hormone.

BIOLOGICAL CHEMISTRY.

Vitamin E.

H. M. EVANS, D. H. EMERSON AND G. A. EMERSON (*Journal of Biological Chemistry*, February, 1936) have succeeded in isolating from the non-saponifiable matter in wheat germ oil, an alcohol having the properties of vitamin *E*. The name suggested for this alcohol is α-tocopherol, to which has been assigned the provisional formula of $C_{29}H_{50}O_2$. The alcohol was separated by the formation of a crystalline allophanate which was repeatedly recrystallized. On hydrolysis the oily alcohol was recovered, and this, when fed in a single dose of three milligrammes, enabled rats deficient in vitamin *E* to produce litters.

Vitamin C Studies with Children of Pre-School Age.

GLADYS J. EVERSON AND AMY L. DANEILS (*Journal of Nutrition*, July, 1936) have studied the vitamin *C* retention and excretion of three normal boys, aged thirty-nine, fifty-seven and fifty-nine months respectively. During twelve successive periods the boys were given weighed diets, differing from period to period only in vitamin *C* content. Urinary excretion of ascorbic acid paralleled the intake, despite the fact that retentions at certain levels of ingestion were considerably below the physiological optimum. Retentions of ascorbic acid paralleled the ingestions only up to an intake of 7·5 milligrammes per kilogram of body weight. Higher ingestions (10 to 12 milligrammes per kilogram) were without influence on the retentions. The highest retentions (3·8 to 4·3 milligrammes per kilogram) were obtained with the youngest child. Comparable amounts of commercial ascorbic acid and ascorbic acid from foods resulted in similar retentions.

"Viosterol" in Prevention and Treatment of Rickets and Tetany.

DAVID H. SHELLING AND KATHERINE B. HOPPER (*Bulletin of the Johns Hopkins Hospital*, March, 1936) have reported the results of an extensive clinical trial in several hundred cases of the efficacy of "Viosterol" as a preventive and curative for rickets and tetany. The conduct and results of the trial are discussed in detail. In full-term infants daily doses of five drops of "Viosterol" (containing about 1,125 international vitamin *D* units) were found to be efficacious in preventing rickets. In prematurely born infants and in babies growing too rapidly mild degrees of rickets appeared in only a few babies receiving five or ten drops of "Viosterol" daily. It was therefore considered advisable to administer fifteen to twenty drops of "Viosterol" daily for the first few months of life, after which the dose was to be reduced to that of full-term infants. One hundred and thirty-four patients with active rickets were treated with "Viosterol" in doses ranging from fifteen to sixty drops daily. It was found that doses from thirty to sixty drops daily did not always induce more rapid healing than doses of twenty drops per day. Toxic manifestations of "Viosterol" administration were never encountered, even with doses of thirty to sixty drops daily for many months.

Vitamin C Content of Human Milk.

IVA SELLEG AND C. G. KING (*Journal of Nutrition*, June, 1936) found the average vitamin *C* content of human milk to be about 0·055 milligramme per cubic centimetre. On a good hospital dietary the average value rose to 0·064 milligramme per cubic centimetre. When orange juice supplements, equivalent to 430 milligrammes of vitamin *C*, were given, the average value rose to 0·08 milligramme per cubic centimetre. From the milk analyses it was calculated that the average intake of an infant fed by a mother on an adequate diet was 40 to 50 milligrammes per day. Several patients with subnormal vitamin *C* values rapidly gave normal values when an orange juice supplement was given. Patients with initially high lactation levels showed relatively small increases when vitamin supplements were given. Excess quantities of vitamin were rapidly eliminated in the urine. The normal level of vitamin *C* in human milk is shown to be strikingly higher than that in cow's milk.

Djenkolic Acid.

V. DU VIGNEAUD AND W. I. PATTERSON (*Journal of Biological Chemistry*, June, 1936) have described a synthesis of the sulphur-containing amino-acid, djenkolic acid, which was first isolated from the djenkol bean by Van Veen and Hyman. Djenkolic acid is the cysteine thioacetal of formaldehyde.

Treatment of Diabetes with Insoluble Insulin Compounds.

CLINICAL tests with an insoluble insulin tannate have been made by P. A. Gray (*Endocrinology*, July, 1936). Control of the diabetes was obtained when the compound was used alone or in conjunction with commercial insulin. Owing to the relative insolubility of insulin tannate, delayed absorption and hence prolonged liberation of free insulin occurred. Increased effectiveness of insulin tannate over commercial insulin was shown by the lower fasting blood sugar levels and the smaller number of total units required per day. The hypoglycæmic effect of insulin tannate was found to be of about the same order as that of protamine insulinate. Improved tolerance was also observed in four diabetic patients treated with the zinc salt of insulin.

Specific Polysaccharide of Bacillus Dysenteriæ (Shiga).

W. T. J. MORGAN (*Biochemical Journal*, May, 1936) describes a modified method for the isolation and purification of a specific polysaccharide from the "smooth" form of *Bacillus dysenteriæ* (Shiga). The polysaccharide is strongly dextrorotatory, contains 1·6% nitrogen, which is present in the form of acetylated amino groups and yields 97% of reducing sugars on acid hydrolysis. The specific substance accounts completely for the serological activity of the smooth variant of *Bacillus dysenteriæ*.

Pineal Extract.

L. G. ROWNTREE, J. H. CLARK, A. STEINBERG AND A. M. HANSON (*The Journal of the American Medical Association*, February 1, 1936) record results obtained by treating successive generations of rats with pineal extract (Hanson). Pineal tumours in man are associated with general pressure symptoms, local pressure symptoms and precocious sexual development. Pineal extract (one cubic centimetre) was injected daily into four pairs of albino rats and into the offspring of these rats. Five successive generations of rats have been observed; they have displayed retardation in development, dwarfism and precocious gonodal development. Blindness occurred frequently and the rats had a bulldog appearance, suggesting the Hercules-in-miniature appearance, said by some to characterize the clinical picture of pineal tumour. Hanson's preparation of pineal gland was used, an aqueous acid derivative, containing 0·21% free picric acid.

The Cholesterol Content of Muscle.

W. R. BLOOR (*Journal of Biological Chemistry*, July, 1936) has investigated the cholesterol content of muscle. Smooth muscle has the highest content, averaging 0·75% of its dry weight; cardiac muscle is next with 0·55%, and skeletal muscle lowest with 0·3%. Variations in cholesterol content occur in each type. Different skeletal muscles in the same animal have a similar cholesterol content. Values for the phospholipid/cholesterol ratio are high for skeletal and cardiac and low for smooth muscle. It is probable that the findings represent real functional relations, that cholesterol is related to spontaneous activity of smooth and cardiac muscle and phospholipid to energy expenditure.

British Medical Association News.

ANNUAL MEETING.

THE annual meeting of the Western Australian Branch of the British Medical Association was held at the Hospital for the Insane, Claremont, on March 15, 1936, DR. F. L. GILL, the President, in the chair.

Financial Statement.

In the absence of Dr. Donald Smith, the Honorary Treasurer, who sent an apology for non-attendance, the balance sheet and financial report for the previous twelve months were presented by Dr. L. E. Le Souef, the Honorary Secretary, and adopted. The financial statement is published herewith.

Dr. T. C. Boyd and Dr. A. W. Farmer were elected Honorary Auditors.

Library Report.

Dr. Cyril Bryan, the Honorary Librarian, presented the report of the Branch library, which was adopted. The report is as follows:

I beg to submit to you the report of the British Medical Association Library for the twelve months ended March 14, 1936.

A gratifying increase in the use of the facilities offered by the library has been manifested, and a greater all-round interest has been indicated in all sorts of ways. Daily inquiries have been made in the shape of personal visits, by letter and by telephone, and much appreciation of the assistance rendered has been expressed on every occasion.

Unfortunately, some of these requests for information we have been unable to satisfy because of: (i) the absence of complete volumes of some publications, (ii) the non-stocking of up-to-date text-books and recent monographs, (iii) the restricted number of journals and periodicals.

Every effort is being made to replace the missing volumes, and it is hoped that permission will be given for the purchase of a few indispensable books, such as "Martindale's" *et cetera*, and particularly for journals.

During the past year a still greater number of requests have been made for the establishment of the library in some situation where it would be more convenient for a greater number of members. The consensus of opinion favours the Perth Hospital. It is pointed out that some 70 or 80 members attend there every week. The difficulty, of course, is a room. The secretary of the hospital has been approached a number of times and is looking for accommodation. In addition, the medical superintendent has promised to go into the matter exhaustively with me in the near future. I hope to have something definite to report at the next monthly meeting.

The thanks of the Branch are due to those members who have continued to donate their journals: Dr. A. T. White, Dr. M. K. Moss, Dr. J. Vere Arkle, Dr. G. W. Barker, Dr. Donald Smith, Dr. J. P. Ainslie and Dr. Bruce Hunt.

As well, we wish to thank the following for the presentations they have made to the library during the year: the North Canterbury Hospital Board, New Zealand, a bound volume of *The Lancet*, 1878, *The New Zealand Medical Journal*; the Victorian Branch of the British Medical Association, a collection of books; Dr. F. Slater, a collection of books; Dr. T. C. Boyd, bound volumes of *The Proceedings of the Royal Society of Medicine*; Dr. H. S. Lucraft, *The Quarterly Journal of Medicine*; Dr. A. Webster, "Cardiac Arrhythmia and the Neocardiology" (Alfred Webster); Dr. J. Kenny, water colour of the first colonial hospital on Garden Island, as depicted by him; Dr. C. P. Bryan, "Roundabout Harley Street" (Cyril Phillips Bryan).

I give it as my honest opinion that the library is being looked forward to more and more as a place where members may refer their inquiries and receive prompt and satisfactory replies and information. In those cases where there is in our possession a journal containing the required information it is forwarded by first post. But that is not all. There are many references we are unable to give where the journal is not in our possession, and this must be, and is, counted as valuable. For in most cases the journal in question is being privately subscribed to and we have been able to secure it on loan to the library. In this connexion I could not let my report for the year go by without stating the satisfactory manner in which the Library Assistant has made herself acquainted with the various phases of medical and surgical literature, and, I must further add, has performed her duties with complete satisfaction.

The Medical Benevolent Association.

The report of the Medical Benevolent Association for the year ended December 31, 1935, was presented by the Honorary Secretary, Dr. G. B. C. Maitland, and adopted. The report is as follows:

For the year 1935 the list of members of the Medical Benevolent Association numbered 103 financial members, of whom 10 are life members.

The arrangements for paying the annual subscription to the Benevolent Association together with the British Medical Association subscription has resulted in an increase of 29 financial members. The membership is still far too low considering that there are 261 members of the British Medical Association. Subscriptions have increased by £53, much of which was unpaid subscriptions from previous years.

During the year benevolent contributions were made to the extent of £34, and help is at present being granted to an aged doctor and his daughter who are entirely indigent. Shortly a sum of £80 or £90 will have to be spent in repatriating these beneficiaries to their relatives in Cape Town.

The bank balance on December 31, 1935 (as per balance sheet) was £442 13s. 9d., or £119 14s. 6d. in excess of last year.

The following officers were elected for the year:

Trustees: Dr. Crisp, Dr. Holland Dr. Le Souef.

Councillor: Dr. Day.

Auditors: Dr. Cohen, Dr. Boyd.

Secretary and Treasurer: Dr. Maitland.

Post-Graduate Association.

The annual report of the West Australian Post-Graduate Association for the year ended March, 1936, was presented by Dr. J. P. Ainslie. The report is as follows:

Personnel.—Resignation. Dr. Hislop, an original member of the Post-Graduate Committee, resigned during the year. Dr. Hayward kindly filled the vacancy at the request of the committee.

Temporary vacancy. Dr. H. S. Lucraft kindly filled a temporary vacancy on the committee during the leave of absence granted to Dr. B. L. Buttsworth.

By effluxion of time Dr. A. W. Farmer, representing special branch, and Dr. L. Hayward, physician, retire. Both are eligible for reelection.

Annual Post-Graduate Refresher Course.—Your committee decided not to hold the annual course in 1935, the year of the British Medical Association meeting in Melbourne. The course for 1936 will be held from September 28 to October 3. Dr. Stewart Cowen and Mr. Alan Hailes have kindly accepted the invitation of your committee to deliver a series of lectures at this meeting.

Country Meeting.—Your committee was requested by the Council of the British Medical Association to undertake the organization of visits of Perth practitioners to country centres. Country centres were advised, and during 1935 visits by six city practitioners were arranged.

Lectures.—Arrangements were made for lectures to be delivered by visitors passing through Perth. Lectures were delivered by Sir Thomas Dunhill, of London, Professor Fraenkel, of Germany, and Dr. Ivan Maxwell, of Melbourne.

Dr. A. W. Farmer and Dr. L. Hayward were reelected to the committee.

Annual Report and President's Address.

Dr. F. L. Gill then read the Council's report and delivered his President's address (see page 347). The report is as follows:

I have pleasure in presenting the report of your Council for the year ending March, 1936, as follows:

Membership.

Membership of the Branch has increased from 258 to 268.

Deaths.

I regret to report that during the year the following practitioners have died: Dr. D. Mulcahy (Perth), Dr. D. Clement (Perth), Dr. D. R. C. Tregonning (Claremont), Dr. James Thompson (Perth), Dr. R. H. Hemsted (Perth). While we all feel the loss we have sustained in the deaths of these very reliable colleagues, I cannot pass without making special reference to Dixie Clement. Apart from our personal loss, Dixie Clement did such a vast amount of work for the Association, being Honorary Secretary for three years, President of the Branch, and so valuable as a councillor for fifteen years.

Meetings.

There were nine general meetings during the year, with an average attendance of 31. I desire to call special attention to the small number of members attending general meetings. Out of 268 members we can only get an average of 31 at each meeting. It takes much time and work to prepare for these meetings, and I do wish that we could have more support, both in attendance and offers of assistance and papers. Will all present tonight urge their *confrères* to attend.

The annual general meeting was again held, by the kind invitation of Dr. James Bentley, at the Hospital for the Insane, Claremont.

Clinical meetings were held at the Perth, Children's and the Fremantle Hospitals. These were kindly arranged by the superintendents of these hospitals.

Interesting papers were read by Dr. F. Gill, Dr. A. A. Merritt, Dr. C. Bryan, Dr. McKellar Hall, Dr. F. Clark, Dr. H. Stewart, Dr. H. B. Gill, Dr. N. M. Cuthbert.

A successful special meeting was held jointly with the Odontological Society on the subject of "Dental Conditions and their Association with the Antrum and Accessory Sinuses"

The annual dinner was held at the Esplanade Hotel, when 43 members were present. The dinner proved a thorough success.

Council Meetings.

The Council met ten times, members attending as follows:

Dr. Atkinson	5	Dr. Syme Johnson .	10
Dr. Carter	7	Dr. Le Souef	9
Dr. Crisp	6	Dr. M. K. Moss ...	10
Dr. F. Gill	8	Dr. D. Smith	10
Dr. Holland	8		
Federal representatives:			
Dr. Paton	9	Dr. McWhae	8

Federal Council.

Dr. Paton and Dr. McWhae were again appointed as representatives.

Library.

During the year the library has made progress in the capable hands of Dr. Cyril Bryan, the Honorary Librarian. Excellent work has been done in cross-indexing the journals supplied to the library. It only remains now for members of the Association to use the library for it to be a success.

Mining Agreements.

Much work has been done by the Contract Subcommittee, and it is hoped that a standard mining agreement will be agreed to for medical fees *et cetera*.

North-West Medical Service.

Under the guidance of a subcommittee consisting of representatives from the Australian Inland Mission, the Pastoralists' Association, the Medical Department, and representatives from this Association, much work has been done and the posts of medical officer at Wyndham, Derby, Broome, Port Hedland and Roebourne have been filled. The Council has agreed to medical appointments north of Carnarvon being full-time appointments at a salary of £1,000 *per annum*, all the charges and fees for medical service being collected by the Medical Department.

Workers' Compensation Act.

The work of our Special Workers' Compensation Act Subcommittee has been continued in the able hands of Dr. M. K. Moss and Dr. F. L. Gill, together with Dr. K. G. M. Aberdeen, who has been appointed this year.

This subcommittee was originally formed on April 6, 1927, to function with a committee of the Underwriters' Association as a joint committee to handle disputes and complaints. This joint subcommittee was disbanded at the instance of the Underwriters' Association at the end of 1931. Our committee, however, continued to function.

The Underwriters' Association approached the Council to reform the joint committee, and I am glad to report that this joint committee is again functioning from December 1, 1935.

It is now agreed that insurance companies, if dissatisfied with the account submitted by the doctor, first approach the doctor, and if dissatisfied with his reply, then they may approach the Underwriters' Association direct, who will refer it to the special medical committee to investigate.

Broadcasting.

The Council has arranged with the Broadcasting Commission for a series of broadcast talks of "popular" nature on medical or pseudo-medical topics by members of the Branch. It gives the medical profession an opportunity to explain its attitude to various matters of general medical and medico-political nature, and provides us with an excellent medium for moulding popular opinion. It is requested that members who are prepared to broadcast shall immediately advise the Honorary Secretary, so that the Association shall not be short of material.

Information to Members.

The policy has been followed of informing members of matters of interest by putting paragraphs on the back of the monthly agenda papers.

Australasian Medical Congress.

The 1937 congress will be held in Adelaide, this being the jubilee year of South Australia. The South Australian Branch very generously offered to stand down for Western Australia, but this being their jubilee year, it would not be possible for us to accept their generous offer. Every effort should be made for the 1940 congress to be held in Perth.

Anatomy School at the University.

The Council's efforts so far have not borne any success in establishing an anatomy school at the University, the reply being that there is no accommodation. I think that the matter should be kept well to the foreground and further efforts made next year.

Executive Committee.

During the year the Executive Committee has been formed by the Council, consisting of the President, the President-Elect and the Honorary Treasurer and Honorary Secretary. Before Council meetings the committee review all matters on hand, including subcommittees' activities. The committee takes action in obvious and less important matters, and sends all matters requiring decisions to the Council. This saves a great amount of time and keeps the Council in much closer touch with subcommittees.

X Ray Fees in Country Districts.

The Council has laid down the principle to country members that where country hospitals equip and own an X ray plant, the fee charged by the doctor should be half the ordinary fee.

Training of Nurses.

There has been much activity during the year by the formation of a union being recognized by the Arbitration Court. Last December the Medical Department held a round table conference of all parties concerned in the training of nurses, and I hope good results will come from this conference.

Reporting Miscarriages.

Recently we were advised that a resident magistrate stated in court that a medical practitioner should report all cases of miscarriage to the police as soon as he became aware of them. We obtained legal advice on this matter, and Sir Walter James advised as follows: "We know of no legal authority requiring medical practitioners to notify the police of cases of miscarriage, and the learned magistrate at Kalgoorlie has no power to require such notification. The matter rests in the discretion of the practitioner."

University Convocation.

The recent University Senate election disclosed that very few members of the medical profession were on convocation and that other professions were represented in much larger numbers. As a medical school must be established at this University within reasonable time, I urge all medical University graduates to nominate for convocation, as their help will be required when the medical school is being formed.

On behalf of the Association I congratulate Dr. Le Souef on his election to the University Senate.

Hospital Facilities for Crippled Children.

Members are aware of the generous gift to Australia of £50,000 by Lord Nuffield for the benefit of crippled children. Dr. Cumpston, the Director-General of Health, arranged a meeting in Perth last June of all those interested, to ascertain their views, and a further conference is being held in Canberra on April 6 next.

In conjunction with the Board of the Children's Hospital, it has been agreed that the best endeavour in this direction would be the erection of a New Coast Hospital for Crippled Children, instead of the establishment of an orthopædic ward in the present Children's Hospital. The general meeting last October strongly supported this view.

Office-Bearers.

The nominations for office-bearers this year were only sufficient to fill all positions, and therefore no ballot was necessary. I declare the following elected:

President: Dr. Syme Johnson.
President-Elect: Dr. D. D. Paton.
Ex-President: Dr. F. Gill.
Honorary Treasurer: Dr. Donald Smith.
Honorary Secretary: Dr. L. E. Le Souef.
Members of Council: Dr. M. K. Moss, Dr. F. W. Carter, Dr. L. A. Hayward.

Statement of Receipts and Payments for Year ended December 31, 1935.

RECEIPTS.	£ s. d.	£ s. d.
December 31, 1934—		
Bank of New South Wales, Current Account	248 17 10	
Cash on Hand	58 1 0	
		306 18 10
Interest—		
Commonwealth Bonds	98 10 6	
Australasian Medical Publishing Company, Limited	14 11 2	
		113 1 8
Anatomy School Fees		7 7 0
British Medical Association Dinner Fund		30 0 0
Subscriptions		877 2 8
Collections for—		
Medical Defence Association		0 10 0
Benevolent Fund		127 1 0
		£1,462 1 2

PAYMENTS.	£ s. d.
Printing	56 7 9
Postages, Telegrams *et cetera*	45 3 10
Secretary's Salary (including Office Rent Free and Clerical Assistance)	112 10 0
Salary, Treasurer's Office	10 0 0
Legal Expenses	3 3 0
Dinner Fund	7 10 9
To London Office	341 5 9
To Sydney for Journal	272 10 0
Contribution, Federal Council	35 8 0
Library Account	100 5 3
Refund to Medical Defence Association	0 10 0
Refund to Medical Benevolent Association	127 1 0
	1,111 15 4
December 31, 1935—	
Bank of New South Wales—Balance	299 5 10
Cash on Hand	51 0 0
	£1,462 1 2

Invested Funds Account.

	£ s. d.
December 31, 1934—	
Invested Funds on Hand:	
Commonwealth Bonds	2,510 0 0
F.D.R., Bank of New South Wales	200 0 0
Australasian Medical Publishing Company, Limited, Debentures	345 0 0
	£3,055 0 0

	£ s. d.
December 31, 1935—	
Invested Funds on Hand, per Bank Certificate:	
Commonwealth Bonds	2,510 0 0
F.D.R., Bank of New South Wales	200 0 0
Australasian Medical Publishing Company, Limited	345 0 0
	£3,055 0 0

We hereby certify that this Statement has been audited according to the books and vouchers submitted and found correct.

(*Sgd.*) DONALD SMITH, Honorary Treasurer.
March 15, 1936.

(*Sgd.*) T. C. BOYD, Honorary Auditor.
(*Sgd.*) LANCE A. HAYWARD, Honorary Auditor.

I desire to place on record the very valuable services rendered by the two members retiring from Council—Dr. Crisp and Dr. Holland.

Dr. Crisp has been nine years on the Council, five years as Honorary Secretary and one year as President, in addition to which he has headed the Hospital Policy Committee for three years.

Dr. Holland also has been nine years on the Council, during one of which he was President. He has been a member of the Workers' Compensation Act Special Medical Committee for two years. He will also be well remembered for restarting the Medical Defence Association and establishing the Benevolent Fund.

I should like to thank the members of the Association for the support they have given to me as President. I especially desire to thank members of Council for their loyal support during the year, and especially I wish to thank our Secretary and Treasurer.

RESEARCH SCHOLARSHIP.

THE Science Committee of the British Medical Association has awarded a research scholarship for the year commencing October 1, 1936, to Dr. T. a'B. Travers, of Melbourne. The subject of the investigation proposed by Dr. Travers is:

1. The manner in which suppression of vision occurs in squint.

2. Abnormal retinal correspondence in squint, with particular reference to the association of suppression of vision and abnormal correspondence.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Jorgenson, Elef, M.B., B.S., 1925 (Univ. Melbourne), Main Road, Belgrave.

Harbison, Julie Mary, M.B. *et* Ch.B., 1918 (Univ. Melbourne), 42, Balaclava Road, East St. Kilda, S.2.

Post-Graduate Work.

A WEEK-END COURSE AT WELLINGTON, NEW SOUTH WALES.

THE New South Wales Post-Graduate Committee in Medicine announces that a week-end course will be held at Wellington, New South Wales, on Saturday, October 17, and Sunday, October 18, 1936. The programme of the course is as follows:

Saturday, October 17, 1936.

3.30 p.m.—Council Chambers: Afternoon tea.
4 p.m.—Dr. F. P. Sandes: "Abdominal Emergencies". Discussion.
5 p.m.—Dr. Allan Walker: "Drugs and Methods Useful for the Symptomatic Relief of Pain". Discussion.
6.30 p.m.—Dinner at Caves House. Inspection of caves.

Sunday, October 18, 1936.

(At Wellington District Hospital.)

9.15 a.m.—Dr. Allan Walker: "Peptic Ulcer as regards: (*a*) Histidine Treatment, (*b*) Management of Hæmatemesis". Discussion.
10.15 a.m.—Dr. F. P. Sandes: "Osteomyelitis". Discussion.
11.15 a.m.—Morning tea.
11.30 a.m.—Dr. Allan Walker: "Nocturnal Dyspnœa". Discussion.
1 p.m.—Luncheon.
2 p.m.—Dr. F. P. Sandes: "Some Points in the Diagnosis and Treatment of Malignant Disease". Discussion.
3 p.m.—Dr. Allan Walker: "Cerebral Crises in Hypertension". Discussion.
4 p.m.—Afternoon tea.
4.30 p.m.—General discussion.

The fee for the course will be £1 1s. Those intending to be present at the course are requested to notify Dr. S. R. Dawes, Orange, as soon as possible, also to state whether it is their intention to be present at the dinner.

Correspondence.

THE UNDERGRADUATE AND HIS TRAINING IN THE NEUROSES.

SIR: My good friend, Dr. W. S. Dawson, in his interesting address upon "Progress in Psychiatry, 1910-1935", takes me to task for some remarks I made in a paper which appeared in the December number of *The Practitioner*, in which I referred, *inter alia*, to the teaching of the neuroses to medical students. I am only too pleased that he should have done so, for I am thereby afforded an opportunity of explaining and reaffirming my views and correcting an erroneous impression to which my words may have given rise when inadvertently abstracted from their intended context. The paper in question formed part of an article entitled "Neurology and General Medicine", which was written for the October number of *The Practitioner* at the request of the editor, Sir Humphry Rolleston. My primary purpose was to indicate the intimate relationship between neurology and general medicine and to emphasize the fact that progress necessitates a wide outlook which recognizes, and avails itself of, the advances in the ancillary sciences. I then referred to the advantages and disadvantages of specialism, and in the latter part of the paper, which was published separately in the December number of *The Practitioner*, discussed the neurological training of the medical student. It is right that I should preface my remarks with this explanation, for I would have the reader clearly understand that when writing of the undergraduate's training in neurology, I was visualizing, not the needs of the future neurologist or psychiatrist, but those of the general practitioner, of the physician and of the man who later adopts one of the many specialties as his life work.

Before I reply to Dr. Dawson's criticisms, it may be well if I epitomize in a few sentences the gist of what I have written regarding the undergraduate's training in the neuroses and "the nervous" or, as we now prefer to term it, "the mental" factor in illness.

A true diagnosis, all will agree, consists, or should consist, in eliciting all the abnormal features a case presents and attempting, so far as possible, to advance a reasoned explanation which will account for and correlate them. But while the symptoms in cases of illness are often to be altogether explained on a physical basis or to consequent disturbances of physiological mechanisms, the medical man meets with many cases in which aches and pains, dyspepsias and a variety of symptomatic manifestations too numerous to mention, although often attributed to physical disturbances, are actually determined by mental or emotional causes. Fears, anxieties and mental misconceptions are indeed in this way responsible for much distress and disability. Now the ætiology of many of these symptoms and disturbances of mental origin, whether they occur in association with physical disease or occur as pure neuroses, is often comparatively simple, and the general practitioner may do much both in the way of prevention and cure if he realizes his potential powers. Unfortunately, however, there is a tendency, this at least is my impression, for some of the physicians and

specialists of today to be ultra-materialistic in their teaching. The attention of the student is thus apt to be concentrated unduly upon the instruments of precision and of the laboratory to the neglect of the part played by the mental factor in producing, exaggerating and perpetuating symptoms. The ultra-materialistic medical man who is constantly attempting to explain symptoms on a physical basis and does not appreciate, or pays little attention to, the important part played by the mental factor sometimes leaves both the student and the patient with the erroneous impression that physical conditions, which, it may be, are of comparatively little importance, are altogether responsible for his condition when this is not the case. How is this state of affairs to be corrected? Here I say that it is the neurologist who is at the same time teaching general medicine, a custom which is fortunately almost universal in this country, and who is interested in the neuroses, also has opportunities of impressing the undergraduate with the importance of the patient's attitude to his own case and of the mental factor as it occurs in association with organic disease. In both the wards and in the out-patient room he meets with a material which enables him to teach the student how to recognize and deal with the minor neuroses—perhaps it would be more correct to say the neuroses when they are at an eminently curable stage—as they occur in practice, and when he should pass cases on to the psychiatrist for an expert opinion or specialized treatment. Do not misunderstand me. I am not for a moment claiming that the neurologist should be regarded as the authority on the neuroses. It would indeed be most unfortunate should there be any question of rivalry between the neurologist and the psychiatrist, for each has his place. My plea is that every undergraduate should be taught to appreciate and evaluate the mental factor in disease and to study symptoms of mental origin just as he does those which are due to physical disease, and that here the neurologist who is teaching general medicine has unique opportunities. The psychiatrist may say that the neurologist has not had the necessary training and experience. But is not T. A. Ross right when, in his Morison Lectures for 1935, he said: "Historically it has been the neurologists in this country and elsewhere who have taken most interest in and done most to advance our knowledge of the neuroses and of their treatment by psychotherapy . . . In this country too it is the neurologist who has been most active with these cases."

But to turn to Dr. Dawson's specific criticisms. Is not my simile quite apt when I speak of the psychiatrist "sallying forth from behind the walls of his institutions and staking out a claim in the treatment of the neuroses"? The psychiatrist need have no feeling of guilt, for his sallies are to be welcomed as a progressive step in the right direction. Am I not right, too, when I say that there is still an unfortunate tendency, which I hope will in time be dispelled, for the public to attach a stigma to mental disease? Again, is it not true that the psychiatrist has not the same opportunities that the neurologist who is teaching general medicine has, of making the student familiar with the neuroses in their early stages and emphasizing the mental outlook of patients suffering from organic disease? Again, when I say that the "psychiatrist claims to have applied himself particularly to the study of academic psychology", do I not add the words "and mental symptomatology", for I know full well, as Dr. Dawson writes, "that the 'live' psychology of McDougall" and, may I add, that of Adler and others, "is generally held to be of greater value in practice". Dr. Dawson need have no fear that "possibly the Edinburgh Diploma in Psychiatry has not kept pace with the requirements of other examining bodies", for I can assure him that Professor D. K. Henderson and his colleagues are quite *au fait* with all that is going on in the field of psychology. Again, Dr. Dawson writes: "To crown these destructive criticisms of the unfortunate psychiatrist, Professor Bramwell suggests that the undergraduate should receive six to twelve lectures from a neurologist 'who is interested in the neuroses and personal side of medicine'. On what grounds", he continues, "does the neurologist claim to be more interested in the neuroses and in the personal side of medicine than the psychiatrist, or indeed than any physician with a broad outlook on life and mind not unduly preoccupied with mere organs?" I am not aware that in my paper I have said anything derogatory of the psychiatrist, and I fully appreciate the value of the instruction on the neuroses given by the psychiatrist to the undergraduate. Nor have I said that the neurologist claims to be more interested in the neuroses or the personal side of medicine than the psychiatrist or that he should be regarded as the authority on the neuroses. I do claim, however, that many neurologists are interested in, and have a considerable experience of, the neuroses, and I must take exception to Dr. Dawson's words when he writes: "While the neurologist's special work qualifies him to diagnose between 'organic' and 'functional', and to apply a variety of methods, all depending on suggestion, for the removal of such disabilities as functional paralysis, abnormal gaits and disturbances of sensation, I am not persuaded that the neurologist is especially equipped to deal with the suprasegmental integrations, that is, with mind. May we remind the neurologist that disordered emotions may be expressed in other symptoms than the purely spinal, for example, cardio-vascular, intestinal or genito-urinary." The psychiatrist may with good reason regard himself as the authority on the "suprasegmental integrations". I would remind Dr. Dawson that my old teacher, the neurologist Déjérine, did much to elucidate the ætiology of manifestations of mental and emotional origin—"cardio-vascular, intestinal, genito-urinary" *et cetera*. Déjérine and Gauckler's work upon "The Psychoneuroses and Psychotherapy", which was published more than thirty years ago, has never received the attention it deserved, for it appeared at a time when the psychiatrists were concentrating upon the work of Freud. But, as Jelliffe writes in the preface of his translation of the second edition of the book, "they show how many patients may be cured without the more detailed analyses elaborated to meet more complex situations". I would commend Déjérine and Gauckler's book to all clinicians. Dr. Dawson concludes his criticism with the words: "Further, I would suggest that the misconception which is fostered in some quarters, that the psychiatrist, like his predecessor, the alienist, deals only with 'insanity' and not with 'nerves' is not entirely disinterested." But Dr. Dawson knows me well enough to realize that my remarks were not inspired by any ulterior motives of the kind. I would indeed give the psychiatrist every facility to deal with the neuroses.

Yours, etc.,

EDWIN BRAMWELL.

23, Drumsheugh Gardens,
Edinburgh, 3,
July 20, 1936.

BRONCHIECTASIS.

SIR: As sinusitis is so commonly overlooked as a source of disease, and its intimate connexion with chronic bronchitis and bronchiectasis so important, Dr. Watkins's article on the subject is opportune in bringing this condition into prominence. As one of the pioneers of this question, I would like to point out that he has not gone quite far enough back, as in 1920, in the March 13 edition of our journal, in an article dealing with the infections of just on 1,000 cases attended by me at the Melbourne Hospital, there were forty-five cases of bronchitis. Of these, twenty-five had sinus infection alone, nine dental infection, four tonsillar infection, three dental and sinus infection, one tonsillar and sinus infection, one with dental, tonsillar and sinus infection, and two only without any infection one could find. Thirty out of the forty-five had sinusitis. In the May 9 edition of our journal, 1925, in an article on sinusitis by me, it was pointed out that 25% of the patients attending my out-patient clinic were suffering from sinusitis; and there again, out of eighteen pulmonary cases, all of which had sinusitis, there were ten cases of chronic bronchitis. Quoting from the same paper, the incidence of pure sinus

infection is very high, but if it is realized that the drainage from the sinuses is towards the mediastinal lymphatics, the infection, when the lymphatics become involved, spreads along the bronchi, causing hilar thickening, as is seen also in phthisis. This infection, at first extrabronchial, eventually becomes bronchial and chronic bronchitis is established. Still again, in the September 17 edition, 1932, the possible relationship of pulmonary tuberculosis from sinuses containing tubercle bacilli was pointed out. The chain of glands posterior to the sterno-mastoid drain the sinuses and are frequently found to be enlarged with sinusitis. When such glands are definitely tubercular it is rational to assume that they may have become infected from the sinuses, and if hilar thickening can be due to sinus infection, tubercular infection of the hilus and lung can also arise from that source. Several cases, definitely tubercular, of the posterior chain were cured by antral operation or treatment. That there is a possibility of aspiration infection cannot be denied, but I am personally inclined to lymphatic drainage being the chief source.

Yours, etc.,

SYDNEY PERN.

Ballarat,
Victoria.
Undated.

SHORT WAVE THERAPY.

SIR: In view of Dr. Speeding's remark in his paper on "Some Results of Short Wave Therapy", I think it only fair to voice my disagreement with him in respect to the usefulness of the spark-gap machines. He says that a valve type apparatus was used, as the spark-gap machine was not considered to be efficient enough. I have treated over eighty cases with an "Undala B extra" and have found that even in fat people the output, using an eight-metre wave-length, is quite as much as they care to tolerate, even with pads nine and a half by six inches. With a six-metre wave-length there is too great a loss of power, as the cables will not hold it. Personally I have found that an eight-metre wave-length is therapeutically the most efficient and far superior to sixteen metres. The standardization of wave-lengths is accurate, as can be tested, the expense is less, and the life of the machine longer in the spark-gap type.

Yours, etc.,

SYDNEY PERN.

7, Raglan Street N.,
Ballarat,
Victoria.
August 18, 1936.

LIP STICK AND CANCER.

SIR: In view of the increasing use by the youthful and not so youthful female of the species of various amazingly coloured lip sticks, used quite obviously nowadays with no intention of even simulating Nature, but rather to be bizarre, it may be pertinently inquired: "What will be the effect later on the lip cancer statistics?"

I do not know definitely the constitution of the kaleidoscopic range of scarlet, cherry, eosin, pink, mauve and yellow dyes that daily dazzle me, but I imagine that some at any rate are closely related to substances considered to have a definite part in the genesis of neoplasia.

Will the relative rarity of lip cancer in the female become replaced by an incidence equal, if not greater, than that in the male sex?

I imagine it more than likely the next few years will confirm my views.

Yours, etc.,

BURTON BRADLEY.

"Whitehall",
Macquarie Street,
Sydney,
August 19, 1936.

NEPHRITIS AFTER SCARLET FEVER.

SIR: For many years I have been convinced that it is not sufficient to test the urine of convalescents from scarlet fever or diphtheria for a period of five weeks only. Even though previous tests have not shown any albuminuria, testing should be done once a week at least for seven weeks.

Patients who have been in public hospitals with scarlet fever or diphtheria should particularly have this care taken; parents do not know that, though the child has been released from hospital, it is still for some weeks in danger of a serious complication; thus the chance of early treatment is missed.

The unexpectedly late onset after these complaints and after mild sore throats explains the later discovery of a chronic nephritis which is too readily attributed to other causes.

Yours, etc.,

G. ATKIN SAMPSON, M.B., Ch.M. (Syd.).

Corinda,
Brisbane,
August 24, 1936.

THE ANNE MACKENZIE ORATION.

SIR: Professor R. Marshall Allan, as orator, chose as his subject "Avenues of Progress in Maternal Welfare". In dealing with the subject of puerperal infection he tells us of the trials and triumphs of pre-antiseptic midwifery and makes the following statement: "Since those days many investigations have added to our knowledge, but sepsis still remains the main cause of maternal deaths, despite the greater precautions and better technical methods." How can we describe our precautions as greater and our technical methods as better if we compare Collins's figures, referred to by the orator, with those of the present day? Collins kept records of upwards of ten thousand cases showing a mortality of 0·53 *per centum*, not one of which was due to sepsis! Professor Allan comments on this achievement of Collins by saying: "For some reason or other British obstetricians disregarded this example, and sepsis again became an epidemic menace." Are not they still doing it?

Yours, etc.,

A. C. F. HALFORD.

Brisbane,
August 26, 1936.

POISON GAS AS A WEAPON OF WAR.

SIR: The letter written by Dr. A. G. Butler in THE MEDICAL JOURNAL OF AUSTRALIA of August 29 deserves more than a passing comment. In spite of the international agreement against its use, poison gas has come to stay. It was used in the war between Italy and Abyssinia. In England gas masks (made by manufacturers of poison gas and by others) are available for adults, children and, we are informed, even for dogs.

Dr. Butler infers that gas is a relatively humane weapon. Its use, however, means probable rapid mass murder, both of armies in the field and of civilians in their homes.

His suggestion that the British Medical Association should consider whether it should work for the use of poison gas to the exclusion of other means of warfare may appeal to the professional soldier, but not to the people who (through their national governments) are their employers.

If the medical profession is to take any action in the problem of war and peace, it can act to advantage not by dealing with the minor problems of tariff barriers (which, by the way, may be regarded as part of the war system), but by utilizing their general, biological and psychological knowledge in the endeavour that some form of world government may eventually come into existence. The change of the confederation of the League of Nations to a

federation with organs of government will indeed enable man, the citizen of the world, to enjoy the blessings of permanent and universal security and peace.

The activity of the British Medical Association in England may help the same organization in Australia to take an active interest in the task of creating an international political organization which can abolish war and its weapons, such as poison gas.

Yours, etc.,

S. J. CANTOR.

Mont Park,
Victoria,
August 31, 1936.

MITHRIDATISM.

SIR: Your correspondent touches upon an interesting subject. Professor Sahli, the Swiss clinician and the originator of the well-known Sahli method of tuberculin treatment, bases his system on what he calls "mithridatism". He says: "A tradition of the Pontic King Mithridates comes down from antiquity that he, in his fear of all kinds of poison, sought to render himself insensitive to them by consuming increasing doses of them. He attained this end to such an extent that, when in his conflicts with Pompey, despairing of his fate, he sought to poison himself and his whole family, he failed and was stabbed at his own wish by his bodyguard."

"The expression 'mithridatism' is used, therefore, as a general designation of all forms of tox-immunity by progressive assimilation of toxin."

He continues: "We can anticipate that one of the most important factors of the natural healing processes of the tuberculin consists of a gradual insensibilization of the organism to the chemical tubercle-toxin, a tox-immunity obtained by assimilation of gradually rising doses of tuberculin."

Yours, etc.,

ALFRED E. FINCKH.

Sydney,
August 31, 1936.

Obituary.

JOHN SMITH PURDY.

THE death of Dr. John Smith Purdy has already been recorded in these pages.

We publish hereunder an oration delivered by Professor Harvey Sutton, O.B.E., at Saint James's Church, Sydney, on July 28, 1936, at the funeral of the late John Smith Purdy.

Dr. John Smith Purdy died of pneumonia on Sunday, July 25, at the age of sixty-four years. He was born on January 31, 1872, in Morpeth, Northumberland, and graduated M.B., C.M. at Aberdeen University in April, 1898. After about eight months at Blyth in England he joined his brother (1899), Dr. James R. Purdy, C.B.E. (late Director of Medical Services, New Zealand), at the Hutt, Wellington, New Zealand, and in 1900 for three months was surgeon of Otaki Hospital.

In January, 1901, the call came to active service in the South African War as surgeon captain, Sixth and Tenth New Zealand Mounted Rifles (Plumer's Column). Following the end of the war (June, 1902), he remained in South Africa as temporary health officer, Dundee, Natal.

War, that fierce test that so often refines the gold and purges away the dross, seems to have turned his steps towards his life work, public health.

He therefore returned to London for post-graduate study and research (1903-1904) at the London Lock Hospital, St. Pancras Infirmary and London Temperance Hospital. Thanks to experience gained at the London Lock Hospital, he submitted a thesis on "Treatment of Syphilis" and gained his M.D., Aberdeen. He attended the medical officer of Health, Tottenham, Saint Bartholomew's hospital and the Royal Army Medical Corps College, and obtained his Diploma in Public Health, Cambridge.

While in private practice at Liverpool he was sent out in July 1905, on the recommendation of Sir W. H. Power, Local Government Board, as nominee of the Foreign Office to the Egyptian Quarantine Service stationed at Port Said. In February, 1906, he was sent on special service as medical officer in charge of the quarantine hospitals at El Tor, in the Sinai, where the return of the great Meccan pilgrimage is supervised in order to prevent the spread of deadly epidemics, such as plague, smallpox and bacillary dysentery.

In Egypt he cooperated with Dr. E. J. Ross in campaigns against malaria-carrying mosquitoes in Port Said. This experience directed his attention to the importance of insect vectors of disease, and he did research work on flies and disease and wrote the first article in the *Journal of the Royal Sanitary Institute* on "The Rôle of Insects as Carriers of Disease". Thus he joined the international band of workers to whom we owe our relative freedom from typhoid and other enteric disorders—a freedom which represents a saving of untold suffering and of numberless lives.

In February, 1907, he returned to New Zealand as District Health Officer of Auckland. In 1910 he was appointed Chief Health Officer of Tasmania, and finally in 1913 accepted the position of Metropolitan Medical Officer of Health, City of Sydney.

In these seven years he demonstrated his capacity as a leader in public health. His gifts of intuition of selecting the worth-while, combined with his progressive, far-seeing views, led him to sponsor new movements: school medical inspection, infant health work, pure food legislation, industrial welfare. His sound practical common sense and whole-hearted support played no small part in the successful establishment of these benefits. In 1915 the Royal Sanitary Institute elected him a Fellow in recognition of his outstanding ability.

In 1914, he left as major, Australian Army Medical Corps, with the First Australian Division to Egypt and the Dardanelles; later, in 1915, he was on the staff of Major-General Ford, Director of Medical Services, as specialist sanitary officer. In 1916, as lieutenant-colonel, he was in charge of sanitation at Tel-el-Kebir, a great camp of over 30,000 Australians and New Zealanders, training the Sixth Sanitary Section and dealing with the many problems of military sanitation.

In June, 1916, he left with the infantry for Salisbury Plains *en route* for France, and there commanded the Tenth Australian Field Ambulance and gained for conspicuous gallantry in the care of the sick and wounded at the battle of Messines the most esteemed reward for efficiency as well as courage that an officer can receive—the Distinguished Service Order. Twice he acted as Assistant Director of Medical Services, Third Australian Division, and finally, as temporary colonel, commanded the Third Australian General Hospital at Abbeville.

After four years' war service he returned to his work in Sydney.

In 1919 he was appointed Lecturer in Sanitary Law, Sydney Technical College, a post he held at his death. Sydney was in the throes of the influenza pandemic and over 200,000 were inoculated against the disease under his auspices.

Apart from his official duties he compressed into what should have been leisure an enormous amount of public work as a citizen.

As a medical student he had displayed prowess at athletics and association football, and so it was natural for him to take a keen interest in playgrounds and recreational facilities and in town planning, which makes these possible.

He was keen on the Boy Scouts and held the Silver Wolf Badge awarded by Baden Powell himself.

He was a lifelong supporter and deputy chairman of the Saint John Ambulance Association, while he took an enthusiastic interest in the welfare of returned sailors and soldiers. In all of these societies he at some time was president or chairman, a mark of the universal high

esteem in which he was held. He sat on the Repatriation Education Committee for soldiers' orphan children.

Few people have entered more closely into the life of the community of his time or served it so faithfully and without fear or favour. The medical profession is not one which gives great monetary rewards, but it stands second to none in its traditions of service to humanity. Purdy started life as a practising physician and won for himself an honoured name in an honoured profession.

Health Week, a movement he inaugurated in Sydney and in Australia in 1921, is a growing force in the community, a movement that was very near his heart. At first many regarded it with suspicion, but its success convinced the Health Department of the value of sound publicity and led to the official appointment of a publicity officer, who has proved invaluable, and every organization, official or otherwise, now cooperates with this public activity, unique among such movements, that it asks service from everyone, but no one for money.

Scarcely a fortnight ago he took the chair, though suffering miserable pain, at a meeting to arrange the preliminaries of this year's Health Week.

It seems incredible that that active mind, fertile in wise plans, full of undiminished energy, should now have passed so abruptly from among us. Though he had completed his official term of years at the Health Department and entered his last period of service for the city, he was looking forward to long years free from the ties of daily routine of useful activity in public health movements. But such was not to be, and all health workers and all citizens of this great city must mourn this irreparable blow and sympathize with those near and dear to him in their loss.

With all his mind and with all his soul and with all his strength he fought the good fight in the great never-ending campaign of peace against human suffering and human disease; he fought for better conditions of life now and in the future, for better human beings, and especially for the welfare of mothers and children.

He died in harness in the fullness of mental powers—his work was done ere we could thank him.

"What homage could his lips but speak today, would he have held most dear?"

"Not grief as for a life untimely reft. Not vain regret for counsel given in vain. Not pride of that high record he has left peerless and pure of stain. But service of our lives to keep her safe and free, the land he loved. A pledge above his grave to give her even such a gift as he the soul of loyalty gave."

As a lifelong member of the British Medical Association he took a constant interest in its work, and at the great Medical Congress in Sydney in 1911 acted as President of the Public Health Section.

Among his many papers may be noted specially important contributions to health progress: "Better Sanitation for Ships' Crews", 1911; "Pneumonokoniosis in Quartz Miners" (*The Practitioner*); "Sanitation and Hygiene in the Field", 1913 (*Commonwealth Military Magazine*); "Lighting and Ventilation of Factories" (*Journal of Industrial Hygiene*).

Among his awards and distinctions were the V.D. for long service, 1929, *Médaille d'honneur des epidémies*, 1933, Honorary Associate Holy Order St. John of Jerusalem, 1918, and Fellow of the Society of Medical Officers of Health, England, 1930.

DOUGLAS EDWARD STEWART.

We regret to announce the death of Dr. Douglas Edward Stewart, which occurred on September 3, 1936, at Melbourne, Victoria.

JAMES REIACH.

We regret to announce the death of Dr. James Reiach, which occurred on September 4, 1936, at Manly, New South Wales.

Proceedings of the Australian Medical Boards.

TASMANIA.

Dr. R. J. David Turnbull writes that the information published on July 18, 1936, and taken from *The Tasmanian Government Gazette* of May 26, 1936, in connexion with the proceedings of the Medical Board of Tasmania, is incorrect. His address was given as "Public Hospital, Launceston". Dr. Turnbull states that he has never had any connexion with that institution; his address is 31, Brisbane Street, Launceston.

Books Received.

SPIDER WONDERS OF AUSTRALIA, by K. C. McKeown; 1936. Australia: Angus and Robertson, Limited. Crown 8vo, pp. 284, with illustrations. Price: 6s. net.

THE COMMON COLD AND INFLUENZA AND THEIR RELATIONSHIP TO OTHER INFECTIONS IN MAN AND ANIMALS: THE NATURE OF DISEASE ANNUAL REPORTS FOR THE YEARS 1934 and 1935, by J. E. R. McDonagh, F.R.C.S.; 1935. London: William Heinemann (Medical Books) Limited. Imperial 8vo, pp. 168. Price: 12s. 6d. net.

SYNOPSIS OF DISEASES OF THE HEART AND ARTERIES, by G. R. Herrmann, M.D., Ph.D.; 1936. St. Louis: The C. V. Mosby Company; Melbourne: W. Ramsay. Demy 8vo, pp. 344, with illustrations. Price: 24s. net.

EXOPHTHALMIC GOITER AND ITS MEDICAL TREATMENT, by I. Bram, M.D., with foreword by R. G. Hoskins, Ph.D., M.D.; Second Edition; 1936. St. Louis: The C. V. Mosby Company; Melbourne: W. Ramsay. Royal 8vo, pp. 456, with 79 illustrations. Price: 36s. net.

BASAL METABOLISM IN HEALTH AND DISEASE, by E. F. Du Bois, M.D.; Third Edition; 1936. London: Baillière, Tindall and Cox. Royal 8vo, pp. 494, with 98 illustrations. Price: 22s. 6d. net.

A SHORT PRACTICE OF SURGERY, by H. Bailey, F.R.C.S., and R. J. McN. Love, M.S., F.R.C.S.; Third Edition; 1936. London: H. K. Lewis and Company Limited. Demy 8vo, pp. 1004, with 763 illustrations, of which 88 are coloured. Price: 28s. net.

AURAL THERAPY IN RELATION TO DEAFNESS, by D. F. Fraser-Harris, M.D., D.Sc., B.Sc., F.R.S.E.; Second Edition; 1936. London: The Sterling Medical Publishing Company. Crown 8vo, pp. 45, with illustrations. Price: 7s. 6d. net.

THE NATURE AND TREATMENT OF ASTHMA, HAY FEVER AND MIGRAINE, by A. G. Auld, M.D.; 1936. London: H. K. Lewis and Company Limited. Demy 8vo, pp. 267. Price: 12s. 6d. net.

THE ADRENALS, by A. Grollman, Ph.D., M.D.; 1936. London: Baillière, Tindall and Cox. Royal 8vo, pp. 422, with illustrations. Price: 22s. 6d. net.

A TEXTBOOK OF HISTOLOGY, by J. Krafka, junior, Ph.D., M.D.; 1936. London: Baillière, Tindall and Cox. Royal 8vo, pp. 263, with illustrations. Price: 11s. 6d. net.

PARENTERAL THERAPY: A READY REFERENCE MANUAL OF EXTRA-ORAL MEDICATION FOR PHYSICIANS, DENTISTS, PHARMACISTS, CHEMISTS, BIOLOGISTS, NURSES, MEDICAL STUDENTS AND VETERINARIANS, by W. F. Dutton, M.D., and G. B. Lake, M.D.; 1936. London: Baillière, Tindall and Cox. Imperial 8vo, pp. 396, with 90 illustrations. Price: 34s. net.

TIME OF OVULATION IN WOMEN: A STUDY ON THE FERTILE PERIOD IN THE MENSTRUAL CYCLE, by C. G. Hartman; 1936. London: Baillière, Tindall and Cox. Demy 8vo, pp. 236, with illustrations. Price: 13s. 6d. net.

THE RELIEF OF PAIN: A HANDBOOK OF MODERN ANALGESIA, by H. Balme, M.D., F.R.C.S., D.P.H., with an introduction by Sir E. Farquhar Buzzard, Bt.; 1936. London: J. and A. Churchill. Demy 8vo, pp. 408. Price: 12s. 6d. net.

THE LIFE AND WORKS OF CHARLES BARRETT LOCKWOOD (1856-1914), (The Wix Prize Essay, St. Bartholomew's Hospital, 1934), by E. C. O. Jewesbury, M.A., B.M., B.Ch.; 1936. London: H. K. Lewis and Company Limited. Crown 8vo, pp. 112, with illustrations. Price: 3s. 6d. net.

A TEXT-BOOK OF PHYSIOLOGY, by H. E. Roaf, M.D., D.Sc., M.R.C.S., L.R.C.P.; Second Edition; 1936. London: Edward Arnold and Company. Demy 8vo, pp. 687, with illustrations. Price: 21s. net.

Diary for the Month.

SEPT. 15.—New South Wales Branch, B.M.A.: Ethics Committee.
SEPT. 15.—Tasmanian Branch, B.M.A.: Council.
SEPT. 16.—Western Australian Branch, B.M.A.: Branch.
SEPT. 17.—New South Wales Branch, B.M.A.: Clinical meeting.
SEPT. 22.—New South Wales Branch, B.M.A.: Medical Politics Committee.
SEPT. 23.—Victorian Branch, B.M.A.: Council.
SEPT. 24.—South Australian Branch, B.M.A.: Branch.
SEPT. 24.—New South Wales Branch, B.M.A.: Branch.
SEPT. 25.—Queensland Branch, B.M.A.: Council.
OCT. 1.—South Australian Branch, B.M.A.: Council.
OCT. 2.—Queensland Branch, B.M.A.: Branch.
OCT. 2.—New South Wales Branch, B.M.A.: Annual Meeting of Delegates of Local Associations with the Council.
OCT. 6.—Tasmanian Branch, B.M.A.: Council.
OCT. 6.—New South Wales Branch, B.M.A.: Council.
OCT. 7.—Western Australian Branch, B.M.A.: Council.
OCT. 7.—Victorian Branch, B.M.A.: Branch.
OCT. 9.—Queensland Branch, B.M.A.: Council.
OCT. 12.—New South Wales Branch, B.M.A.: Organization and Science Committee.
OCT. 13.—Tasmanian Branch, B.M.A.: Branch.

Medical Appointments.

Dr. A. E. K. Salvi has been appointed Medical Officer of Health by the Augusta-Margaret River Road Board, Western Australia.

* * *

Sir Hugh Devine has been appointed a member of the Medical Board of Victoria, pursuant to the provisions of the *Medical Act*, 1928.

* * *

Dr. H. E. Pellew has been appointed Temporary Honorary Clinical Assistant to the Gynæcological Section at the Adelaide Hospital, Adelaide, South Australia.

* * *

Dr. C. T. Piper has been appointed Honorary Medical Officer to the Port Lincoln Hospital, South Australia.

* * *

Dr. D. R. W. Cowan and Dr. H. W. Wunderly have been appointed Honorary Physicians to the Bedford Park Sanatorium, South Australia.

* * *

Dr. J. A. Thomas has been appointed Government Medical Officer at Griffith, New South Wales.

* * *

The following appointments have been made at the Royal Alexandra Hospital for Children, Sydney: Dr. W. P. MacCallum, Honorary Assistant Physician; Dr. D. G. R. Vickery, Honorary Relieving Assistant Physician; Dr. S. G. Bradfield, Temporary Honorary Relieving Assistant Physician; Dr. W. Vickers, Honorary Orthopædic Surgeon; Dr. W. L. Macdonald and Dr. R. L. Stephen, Honorary Assistant Orthopædic Surgeons to Physio-Therapy Department; Dr. G. Keith Smith, Honorary Assistant Orthopædic Surgeon; Dr. J. Steigrad, Honorary Assistant Surgeon; Dr. A. F. Hobson and Dr. E. R. Goulston, Honorary Relieving Assistant Surgeons.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser", pages xviii, xix. and xx.

BROKEN HILL AND DISTRICT HOSPITAL, NEW SOUTH WALES: Resident Medical Officer.

LAUNCESTON PUBLIC HOSPITAL, LAUNCESTON, TASMANIA: Resident Medical Officer.

MARRICKVILLE DISTRICT HOSPITAL, MARRICKVILLE, NEW SOUTH WALES: Honorary Consultant Physicians.

PUBLIC SERVICE BOARD, SYDNEY, NEW SOUTH WALES: Medical Officers.

RENWICK HOSPITAL FOR INFANTS, SUMMER HILL, NEW SOUTH WALES: Resident Medical Officer.

SYDNEY HOSPITAL, SYDNEY, NEW SOUTH WALES: Director of Pathology Institute.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCHES.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associate Friendly Societies' Medical Institute. Proserpine District Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY Hospital are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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